

CONTRACT
FOR
PHASES I, II AND III
PROFESSIONAL ENGINEERING SERVICES

FOR DESIGN OF:

«PROJNAME»

WBS NO. «wbsnum»,

THE STATE OF TEXAS §
 §
COUNTY OF HARRIS: §

THIS CONTRACT FOR PROFESSIONAL ENGINEERING SERVICES is made on the date countersigned by the City Controller, by and between the CITY OF HOUSTON, TEXAS (the "City"), a municipal corporation and home-rule city of the State of Texas principally situated in Harris County, and «ENGINE» (the "Engineer"), acting by and through its duly authorized officer. The initial addresses of the parties, which one party may change by giving notice to the respective other party, are as follows:

<u>City</u>	<u>Engineer</u>
Director	«engineer», «engtitle»
Department of Public Works & Engineering	«ENGINE»
City of Houston	«engaddr»
P.O. Box 1562	«engcity», «engstate» «engzip»
Houston, Texas 77251	

RECITALS:

WHEREAS, the City desires to obtain professional engineering services in connection with the planning and design of the Project hereinafter described; and

WHEREAS, the Engineer desires to provide such services in exchange for the fees hereinafter specified;

NOW, THEREFORE, for and in consideration of the premises and mutual covenants herein contained, it is agreed as follows:

ARTICLE 1

DEFINITIONS USED IN THIS CONTRACT

1.1 **Additional Services:** Services that are not part of Basic Services but are included in the list of Additional Services in Section 2.6.

1.2 **Basic and Additional Services Fee Markups:** Fee factors to be applied to Engineer's Basic and Additional Services costs shall be as follows:

1.2.1 **Consultant Subcontracts:**

.1 **Consultant Subcontract Cost:** The ordinary and reasonable cost of Consultant subcontracts made by Engineer and approved by the Director for the principal purpose of obtaining the professional services of others in connection with the performance of any service under this Contract.

.2 **Consultant Markup:** a markup factor of 8%, which Engineer may apply only to Consultant Subcontract invoices for services performed by the Consultant. Engineer shall not apply any Consultant Markup to engineering and administrative services performed by Engineer.

1.2.2 **Engineer's Fees:**

.1 **Raw salary:** The actual cost of salary (annual base salary (excluding bonuses) divided by 2080) of an employee of Engineer for each hour during which such employee is actively performing services of benefit to the City and directly related to the Project. Maximum raw salary rates by employee category for the duration of the Contract are shown on Exhibit "D" attached hereto and, by reference, incorporated. The raw salary rates of Consultant shall not exceed the raw salary rates of Engineer without reasonable justification and prior written approval from the Director.

.2 **Raw Salary Multiplier:** The Raw Salary Multiplier (when applied to Raw Salary) is «rawsal» and includes all payment due Engineer for Raw Salary, salary burdens, benefits, insurance, overtime premium, payroll taxes, bonuses, overhead profit and clerical and management support, vacations, holidays and non-productive time of all kinds. The categories of service for which Raw Salary are payable are set out at Exhibit "D". All other categories of service are treated as overhead and are a part of Raw Salary Multiplier. Payments to contract personnel and personnel employed through employment agencies are not subject to enhancement by the Raw Salary Multiplier.

1.3 **City:** As defined in the preamble of this Contract, including its successors and assigns.

1.4 **City Personnel:** All City employees, but not elected officials.

1.5 **Construction Documents:** All of the graphic and written information prepared or assembled by Engineer for communicating the design and for administering the bidding and construction of the Project.

1.6 **Construction Package:** The whole or a part of the Project pursuant to Section 2.2.3.

1.7 **Consultant:** The professional Consultant or other professional entity subcontracted by Engineer to provide a portion of Engineering services required under the City-Engineer Contract.

1.8 **Cooperative Development Agreement:** a contract between the City and a developer in which the City and Developer share the cost of construction and other eligible costs.

1.9 **Developer:** The owner or agent of the owner development lots or tracts of property for further sale, lease, development, or redevelopment for residential, commercial, or industrial use.

1.10 **Director:** The Director of the Department of Public Works and Engineering or such other person designated from time to time by the Director by notice to Engineer to administer this Contract on behalf of the City.

1.11 **Documents:** The reports, charts, analyses, maps, letters, tabulations, exhibits, notes, models, photographs, the original transparencies of all drawings, Construction Documents, and other work products obtained by or prepared by Engineer as part of its services under this Contract. The Director shall specify the medium and format in which Engineer shall provide such documents.

1.12 **Engineer:** As defined in the preamble of this Contract, including its successors and assigns.

1.13 **Limit on Phase I Compensation:** The limit on Phase I Compensation is «ph1fee» for all construction packages. Engineer's total billings for Phase I services including Engineer's fees, Reimbursable Expenses, fees paid for contract personnel and personnel employed through employment agencies, and any other costs shall not exceed the Limit on Phase I Compensation.

1.14 **Negotiated Lump Sum:** An amount consistent with the terms of this Agreement that City shall pay Engineer for the complete performance of services not to exceed the estimated total of the following:

1.14.1 Raw Salary times Raw Salary Multiplier for services performed by directly by Engineer and Engineer's employees, plus

1.14.2 reimbursable expenses, plus

1.14.3 Consultant Subcontract Costs plus Engineer's Consultant Markup, plus

1.14.4 reasonable fees paid to contract personnel and personnel employed through employment agencies plus Engineer's Consultant Markup.

1.15 **Notice to Proceed:** A written communication from the Director that authorizes Engineer to begin performance of work, containing the following:

1.15.1 a declaration that the City has allocated adequate funds for that phase or service;

1.15.2 the Negotiated Lump Sum for all work described in the Notice to Proceed;

1.15.3 a work description for each service Engineer, Consultants, or suppliers will perform under the Notice to Proceed;

1.15.4 the maximum cost and portion of the Negotiated Lump Sum associated with each work description;

1.15.5 whether the work description represents a Basic or Additional Service;

1.15.6 the phase of the Project to which the work is attributable; and

1.15.7 acceptance of the preceding Phase, when applicable.

1.16 **Project:** As identified in the title of this Contract.

1.17 **Project Schedule:** The schedule of project activities and events, showing initiation point, duration, and ending points using the form attached as Exhibit "B". The schedule will indicate time to be allowed for reviews

by the City staff. The Project Schedule shall be drafted by Engineer in consultation with the Director, approved by the Director, and updated monthly at the time of invoice submittal.

1.18 **Reimbursable Expenses:** Reimbursable Expenses are limited to the following: (1) The ordinary and reasonable cost of copying, printing, postage, delivery services, long distance telephone calls and any additional expenses listed in Exhibit "A" incurred by the Engineer in the course of his performance of Basic or Additional Services under this Contract, including any sales tax Engineer is legally required to pay for Reimbursable Expenses; and (2) the ordinary and reasonable costs of travel including meals and lodging to and from points outside of Houston by representatives of the Engineer, not-to-exceed the amounts established under the City's then current travel reimbursement policy for its employees, if such travel is reasonably necessary to accomplish a task and authorized by the Director as a Basic or Additional Service.

1.19 **Supplemental Notice to Proceed:** A Notice to Proceed amending a preceding Notice to Proceed, which must be issued before services commence, containing the elements listed in 1.15 and the following:

- 1.19.1 a description of the changes in the scope or quality of work between the Supplemental Notice to Proceed and the preceding Notice to Proceed;
- 1.19.2 acceptance for work completed under the previous Notice to Proceed, when applicable;
- 1.19.3 the percentage difference between the original Notice to Proceed for that Phase and all subsequent Supplemental Notices to Proceed; and
- 1.19.4 the incremental cost of the services in the supplemental notice to proceed.

1.20 **Work:** The entire construction required to be provided by the Construction Documents. The Work may constitute the whole or a part of the Project.

ARTICLE 2

DUTIES OF ENGINEER

2.1 **Services in General:** Engineer agrees to provide prompt and efficient professional services in relation to the design of the Project for the fees hereinafter specified. Engineer shall coordinate his performance of the services hereunder with the Director and such other persons as the Director may specify. Engineer shall make periodic verbal or written reports and recommendations to the Director with respect to conditions, transactions, situations or circumstances encountered by Engineer relating to the services to be performed under this Contract and shall attend meetings determined to be necessary by the Director. Engineer shall, upon written request, provide the Director with a copy of written materials prepared by Engineer or made available to it as a result of its performance under this Contract. Engineer's performance hereunder shall be performed with care and diligence and shall be in accordance with the standards prevailing in the State of Texas for engineering services performed for similar projects at the time such services are performed.

2.1.1 Engineer agrees to perform such specific tasks as are set forth in this Article 2 of the Contract as well as in Exhibit "A", which is attached hereto and made a part hereof for all purposes. Provided, however, in the event of an inconsistency between the terms of this article relating to Basic or Additional Services and the terms of Exhibit "A", exclusively with respect to the content of the scope of services and required submission Documents, the

terms of Exhibit "A" shall control. The City may use a Construction Manager as well as City personnel to review portions of the design; however, Engineer acknowledges that while others may suggest design ideas and components of the Project, such suggestions do not relieve Engineer of its professional responsibility to the City for complete design of the Project.

2.1.2 Engineer shall review Notices to Proceed to ensure the work specified within the notices to proceed and change order forms are adequately detailed. Engineer shall report to the Director any work description that does not adequately detail the services Engineer intends to provide. Engineer may not receive payment for work if the work description in Supplemental Notice to Proceed does not appear different in scope from the work description in a previous Notice to Proceed.

2.2 **Basic Services:** The Basic Services in this Contract are divided into three distinct phases: (1) Phase I - Preliminary Design; (2) Phase II - Final Design; and (3) Phase III - Construction Phase Services. Engineer shall perform the services required for each Phase of this Contract only upon receipt of a Notice to Proceed. Engineer understands and acknowledges that the City may determine not to proceed with this Contract after completion of Engineer's services for either Phase I - Preliminary Design or Phase II - Final Design.

2.2.1 Preliminary and Final Designs shall conform to the provisions of the edition of the City of Houston Department of Public Works and Engineering publication entitled: "Infrastructure Design Manual" in effect at the time of the execution of this Contract or other design criteria provided for this Contract by the Director.

2.2.2 Engineer shall attend meetings including periodic progress review meetings with the City and those personnel designated by the Director. Engineer shall coordinate the performance of services hereunder with the Director and governmental agencies and other bodies having jurisdiction over this Project or City consultants performing services related to the Project.

2.2.3 Engineer agrees to perform the services set forth below in Sections 2.3, 2.4 and 2.5 and as further described in Exhibit "A" for each applicable Phase as authorized by the Director. The Director may reduce the scope of services for any of the Phases for the Project: (1) Phase I - Preliminary Design; (2) Phase II - Final Design; and (3) Phase III - Construction Phase Services or may divide the Project into separate Construction Packages by issuing written notice describing 1) the scope of the reduced Project or the scope of each Construction Package, 2) the revised Time of Performance.

2.2.4 Time is of the essence to the performance by the Engineer under this Contract.

2.3 **Phase I - Preliminary Design:** Upon issuance of a Notice to Proceed for Phase I services, Engineer shall perform the Phase I services set out below during the Project. Once the Engineer has billed for the entire Limit on Phase I Compensation, Engineer shall complete the Phase I work for no further compensation. Engineer shall submit to the Director, within ten (10) days of the Notice to Proceed for Phase I, a Project Schedule reflecting firm dates for activities and reviews set forth therein.

2.3.1 Engineer shall prepare for approval by the Director the preliminary engineering studies and designs for the Project. Such studies and designs shall consist of preliminary layouts, sketches, recommended final design criteria, list of City of Houston standard specifications to be incorporated into the Project, reports, and cost estimates.

2.3.1.1 The Preliminary Engineering Report ("PER") shall be prepared in sufficient detail so as to (1) clearly indicate anticipated problems; (2) recommend alternate solutions to the problems; (3) identify the possible "alternate" bid items for the Project recommended by Engineer and the Director; and (4) show recommended division into separate Construction Package, if any. Engineer shall be responsible for coordinating all the Documents.

2.3.2 Engineer shall submit «ph1copy» copies of the preliminary design and outline specification Documents to the Director in the electronic form requested by the Director.

2.3.3 Engineer shall attend preliminary conferences with officials from local, state, and federal agencies; utility companies; and other entities as necessary for the Project. Engineer shall conduct a thorough utility plan review.

2.4 **Phase II - Final Design:** Upon issuance of a Notice to Proceed for Phase II services and based upon approved preliminary design Documents and any further adjustments in the scope or quality of the Project authorized by the Director, Engineer shall perform the following Phase II services during the Project:

- .1 Submit to the Director within 10 days of the Notice to Proceed for Phase II, the Project Schedule updated to reflect firm dates for the beginning and end of each activity set forth therein and the review dates for such activities;
- .2 Prepare detailed Construction Documents based on the guidelines provided by the Director. The Construction Documents shall set forth recommended alternate bid items for the Project in a manner that permits ready evaluation and comparison.
- .3 Inform the Director of any adjustments to previous estimates of the Project Construction Cost which are indicated by market conditions or authorized changes in the scope and requirements of the Project. Engineer does not guarantee that bids will not vary from the estimate;
- .4 Prepare the Documents necessary to obtain approval of governmental authorities having jurisdiction over the design or operation of the Project and all public and private utilities including pipeline transmission and railroad companies, affected by the Project; obtain the signatures of representatives of such governmental authorities and public and private utilities; obtain the signatures of City officials indicated by the City's standard title block for drawings;
- .5 Design the Project in compliance with the requirements of applicable laws, codes, and regulations, including the City of Houston Building Code and the City of Houston Infrastructure Design Manual in effect at the time of execution of this Contract (which are expressly made applicable to this Project); make revisions to the Construction Documents necessary to provide clarifications or to correct discrepancies; and provide the Director with Documents necessary for obtaining a City building permit and other required permits for the Project. The Construction Documents shall conform to applicable federal, state, and City regulations;

- .6 Deliver to the Director:
 - (1) a detailed construction cost estimate at the completion stages of Phase II identified in Exhibit "A";
 - (2) ~~«ph2copy»~~ copies of the recommendations, analyses and other deliverables identified in Exhibit "A" in the electronic form requested by the Director; and
 - (3) Construction Documents identified in Exhibit "A".
- .7 Assist the City in securing bids for the construction of the Project based upon the Construction Documents; attend prebid conferences; prepare all required addenda to revise the Construction Documents (1) provide clarification, (2) correct discrepancies, (3) correct errors and omissions; assist the City in evaluating the bid proposals; prepare tabulations of bids received; and furnish the City three copies of the bid tabulation and a written recommendation for the award of a construction contract for the Project; and assist in the preparation of a construction contract between the City and the successful bidder.

2.5 **Phase III - Construction Phase Services:** Upon issuance of a Notice to Proceed for Phase III, Engineer shall provide professional services during construction to assist in obtaining a completed Project in accordance with the purpose and intent of the Construction Documents. Phase III services shall include, but not be limited to, the following:

- .1 Participate in pre-construction conferences and construction progress meetings;
- .2 Make visits to the Project site at appropriate intervals identified in Exhibit "A" as construction proceeds to observe and report on the progress and the quality of the executed Work. The reports shall be in writing, shall include all referenced supporting documents and shall advise the Director of deviations from the Construction Documents or the contractor's construction schedule observed by or brought to the attention of Engineer. Such reports shall be submitted in a timely manner so as not to cause delay in the progress of the Work. In performing these services, the personnel provided by Engineer shall be experienced in the administration of construction contracts and shall be under the supervision of a professional engineer registered by the State of Texas. Supporting personnel shall be provided from the Project design team when specialized knowledge of the Project design is required;
- .3 Review and take appropriate action upon the shop drawings, samples, and other submissions furnished by the construction contractor and submitted to Engineer by the City. Engineer shall determine if the shop drawings, samples, and other submissions conform to the requirements of the Construction Documents. Engineer shall notify the Director if the shop drawings, samples or other submissions do not conform to the Construction Documents. Such action(s) shall be taken within 14 calendar days of receipt from the City unless approved in advance by the Director. Engineer shall maintain a log of all contractor submittals which shall include the submittal date, the action taken, and the date returned;

- .4 Prepare supporting data and provide other services (including revisions to Construction Documents) at no charge to the City in connection with change orders when such change orders are required either (1) to make clarifications or to correct discrepancies, errors, or omissions in the Construction Documents, (2) to conform the Construction Documents to the requirements of all applicable laws, codes, and regulations, including the City of Houston Building Code (which is expressly made applicable to this Project) as it was in effect at the time of execution of this Contract;
- .5 Review laboratory, shop, and mill tests of material and equipment for general conformance with Contract Document requirements and report to the Director in writing on such matters;
- .6 Provide design clarifications and recommendations to assist the City in resolving field problems relating to the construction;
- .7 Evaluate contractor change and cost proposals and substitutions and recommend to the City to either approve or disapprove the contractor's proposal or substitution, unless instructed not to do so by the Director;
- .8 Perform, together with the City's representatives, observations of the construction site to determine the dates of substantial and final completion of the Work. Engineer shall make a recommendation to the Director as to the issuance of the final certificate of payment;
- .9 No less than thirty days and no more than forty five days before the expiration of the correction period established by the Construction Documents, Engineer, in company with the Director, shall observe the construction site. Within fourteen days after such observation, Engineer shall furnish the Director with a written report enumerating items which require repair or replacement as provided under the correction period provisions of the Construction Documents;
- .10 To avoid misunderstandings or questions, Engineer understands and agrees that the Director shall have the responsibility for the general administration of the construction contract. Accordingly, Engineer shall not have the authority or responsibility to issue direct instructions to the contractor, to reject work done by the contractor, or to require special inspections or tests. Engineer, however, shall provide continuing counsel to the Director throughout the construction of the Project; and
- .11 Post changes on original "record drawings" in whatever format specified by the Director at time of execution. The drawings shall become the property of the City and shall show significant changes made in the Work during the construction of the Project. Such changes shall be based upon marked-up "record drawings", prints, field sketches, and other data furnished to Engineer by the City and the contractor, upon change orders issued during construction, and upon on-site observations of Engineer.

2.6 **Additional Services:** Engineer shall perform the Additional Services specified below if and when the Director authorizes such services, in advance describing the scope in detail and cost of the Additional Services, in writing:

2.6.1 **Route Topographical Survey Additional Services:**

- .1 Perform or obtain the services of a Registered Professional Land Surveyor Consultant to perform Topographical survey services.
- .2 Associated office work under the direction of a Registered Professional Land Surveyor.
- .3 Delivery of Topographical survey - Original survey field books and electronic files, survey control map, and survey drawing to the Director.

2.6.2 **Right-of-Way, Easement or Property Acquisition Survey Additional Services:**

- .1 Perform or obtain the services of a Registered Professional Land Surveyor Consultant to perform Survey services for acquisition of right-of-way, easement, or property.
- .2 Associated office work under the direction of a Registered Professional Land Surveyor.
- .3 Delivery of Survey for acquisition of right-of-way, easement, or property - Right-of-way survey maps and metes and bound descriptions.

2.6.3 **Site Topographical Survey:**

- .1 Perform or obtain the services of a Registered Professional Land Surveyor Consultant to perform Site Topographical survey services.
- .2 Office work associated with Site Topographical Survey and not a part of Basic Services under the direction of a Registered Professional Land Surveyor.
- .3 Delivery of Site Topographical Survey - Original survey field books and electronic files, survey control map, and survey drawing to the Director.

2.6.4 **Drug Detection and Deterrence:**

- .1 Conduct random, reasonable suspicion, and post accident drug testing necessary to comply with Article 7, Basis for Testing of Executive Order 1-31, for this Project.

2.6.5 **Other Additional Services:**

- .1 Provide the services of a Consultant to perform subsurface investigations, including performance of test borings, soil samples, and other foundation investigations, laboratory analyses of the samples, and engineering analyses. Engineer or the Consultant shall prepare a detailed report of all findings, and Engineer shall deliver to the Director 2 bound copies of the report and an electronic copy in the form requested by the Director.
- .2 Travel to points outside Houston and its extraterritorial jurisdiction, if such travel is reasonably necessary to accomplish a task under this Contract and is authorized in writing by the Director. Travel costs shall include common carrier fares, ground transportation expenses and parking fees, and for overnight trips, the costs of lodging and meals and shall not exceed the limits set out in Section 1.14 of this Contract;

- .3 Prepare special studies and reports, such as environmental Documents (including representation and testimony at hearings and community meetings), grant applications, etc.;
- .4 Assist the City in securing any special licenses or permits which may be required for the completion of the Project, it being understood by the parties that the fees for said special licenses and permits will be paid by the City;
- .5 Prepare Project-specific traffic control Plans consistent with the Texas Manual of Uniform Traffic Control Devices (TMUTCD);
- .6 Prepare pollution prevention plans consistent with the Texas Commission on Environmental Quality Pollutant Discharge Elimination System (TPDES) Permit requirements;
- .7 Accomplish existing condition surveys to provide structural dimensions, structural condition, mechanical systems analysis, electrical systems analysis, and general operating conditions of an existing facility;
- .8 Provide the services of an independent cost estimator as a consultant to make a comprehensive construction cost estimate for the Project, in a form satisfactory to the Director (which independent cost estimate shall be in addition to the cost estimates prepared by Engineer);
- .9 Provide value engineering services including the review of other engineers, either within the same organization or in other firms, to determine whether a proposed solution is optimum and, if not, to suggest a better approach for meeting the Project's functional and financial criteria;
- .10 Provide a scale model of the Project;
- .11 Reproduce Construction Documents, reports, and other materials, other than those reproductions included in the Basic Services, and excluding reproductions for the office use of Engineer and Engineer's Consultants;
- .12 Provide, in the event of termination of Engineers services pursuant to Section 4.1, such services as are reasonable and necessary for preserving partially finished work products or for the recording of work products in a particular manner (including the making of record prints of drawings, etc.);
- .13 Provide construction management services on the site during Project construction;
- .14 During the Final Design or Construction Phase, make revisions to Construction Documents, prepare addenda, or prepare change orders to reflect Project scope changes requested by the Director, required to address changed conditions or change in direction previously approved by the Director, mandated by changing governmental laws, or necessitated by City's acceptance of substitutions proposed by the contractor;
- .15 Prepare supporting data and other services in connection with change orders, other than those change orders and related services included in Section 2.5.4;

- .16 Consult with the City concerning replacement of any construction work damaged by fire or any other causes and furnish professional services as may be required in connection with the replacement of such work;
- .17 Prepare or obtain the services of a Consultant to prepare Operation and Maintenance (O & M) Manuals;
- .18 Provide, in the event the Project construction exceeds the time stated in the Construction Documents by more than 30 days, the continuing services required to be done by Engineer during construction of the Project;
- .19 Prepare for, present to, and attend preliminary conferences with the City's Technical Review Committee, as requested by the Director. Engineer shall make such revisions to the preliminary design as may be required by the Director as a result of Committee recommendations. In addition to the foregoing, Engineer shall attend all other meetings as required by the Director; and
- .20 Reestablish survey monuments when necessary.
- .21 Perform services in the event the Basic services are suspended by the Director for a period exceeding twelve months, and the Engineer provides evidence satisfactory to the Director that additional effort is necessary to resume the Basic services.
- .22 Unless instructed otherwise by the Director, cooperate fully with surety's representative in the event of Contractor default; permit surety to copy all relevant documents at surety's expense.
- .23 Provide design services, upon the written request of the Director, to a Developer who has entered into a Cooperative Development Agreement with the City. If Developer is responsible for the cost of any portion of the design, Engineer shall charge Developer substantially the same rates that Engineer charges the City for similar services. Engineer's designs for Developer must be able to interconnect, when appropriate, with Engineer's designs for this Project.
- .24 Provide additional services resulting in a change of scope pursuant to a supplemental notice to proceed, as defined in Section 1.19 of this Agreement. The total cost of additional services provided under this section shall not exceed 25% of the Original Contract Amount, as stated in Section 3.4 of this Agreement, unless City Council approves an amendment to this Agreement.

2.7 **Time of Performance:** Engineer shall perform the Basic Services as set forth in Sections 2.3, 2.4, and 2.5 in accordance with the following:

Phase I - Preliminary Design - «ph1days» calendar days for each Construction Package separately.

Phase II - Final Design - «ph2days» calendar days for each Construction Package separately.

Phase III - Construction Phase Services shall be completed at reasonable intervals in conjunction with the progress of the Project construction and for the period of construction time stated in the Construction Documents.

2.7.1 Time taken for review of Phase I and Phase II designs by City personnel shall be in addition to the calendar day periods specified in Section 2.7. In the preparation of the Project Schedule, Engineer shall allow at a minimum, 21 calendar days for City review of Phase I and 21 calendar days for City review of Phase II.

2.7.2 Engineer shall not commence a Phase until it receives a written notice from the Director to proceed with that Phase. Upon written request of Engineer to the Director and the Director's approval, the City shall grant time extensions during each Phase for any delays caused by the City or other agencies with which the services must be coordinated and over which Engineer has no control.

2.8 **Insurance:** Engineer shall provide and maintain certain insurance in full force and effect at all times during the term of this Contract and any extensions thereto. Such insurance is described as follows:

2.8.1 **Risks and Limits of Liability:** The insurance, at a minimum, must include the following coverages and limits of liability:

(COVERAGE)

(LIMIT OF LIABILITY)

Workers' Compensation

Statutory for Workers' Compensation

Employer's Liability

Bodily Injury by Accident
\$100,000 (each accident)

Bodily Injury by Disease
\$100,000 (policy limit)

Bodily Injury by Disease
\$100,000 (each employee)

Commercial General Liability:
Bodily and Personal Injury; Products and
Completed Operations Coverage

Bodily Injury and Property Damage,
Combined Limits of \$500,000 each
Occurrence, and \$1,000,000 aggregate per
12-month period (defense costs excluded
from face amount of policy)

Automobile Liability

\$1,000,000 combined single limit

Professional Liability Coverage

\$1,000,000 per claim/aggregate

If professional liability coverage is written on a "claims made" basis, Engineer shall also provide proof of renewal each year for two years after substantial completion of the Project, or in the alternative: evidence of extended reporting period coverage for a period of 2 years after substantial completion, or a project liability policy for the Project covered by this Contract with a duration of two years after substantial completion.

2.8.1.1 **Form of Policies:** The insurance may be in one or more policies of insurance, the form of which must be approved by the Director and City Attorney; however such approval shall never excuse non-compliance with the terms of this Section.

2.8.1.2 **Issuers of Policies:** The issuer of any policy (1) shall have a Certificate of Authority to transact insurance business in Texas or (2) shall be an eligible non-admitted insurer in the State of Texas and have a Best's rating of at least B+ and a Best's Financial size Category of Class VI or better, according to the most current edition of Best's Key Rating Guide.

2.8.1.3 **Insured Parties:** Each policy, except those for Workers' Compensation, Employer's Liability and Professional Liability, must name the City and its officers and employees as additional Insureds on the original policy and all renewals or replacements during the term of this Contract.

2.8.1.4 **Deductibles:** Engineer shall be responsible for and pay any claims or losses to the extent of any deductible amounts and waives any claim it may ever have for same against the City, its officers or employees.

2.8.1.5 **Cancellation:**

- .1 Engineer shall give 30 days advance, written notice to the Director of the cancellation or non-renewal of insurance coverage required in Section 2.8 of this Agreement.
- .2 Engineer shall give written notice to the Director within 5 days of the date upon which total claims by any party against Engineer reduce the aggregate amount of coverage below the amounts required by this Contract. Engineer agrees to maintain the requisite coverage during the entirety of performance under this Contract.
- .3 In the alternative to .2 above, the policy may contain an endorsement establishing a policy aggregate for the particular Project or location subject to this Contract.

2.8.1.6 **Subrogation:** Each policy, except Professional Liability, must contain an endorsement to the effect that the issuer waives any claim or right in the nature of subrogation to recover against the City, its officers or employees or assigns.

2.8.1.7 **Primary Insurance:** Each policy hereunder, except Workers' Compensation and Professional Liability insurance shall be primary insurance to any other insurance available to the Additional Insured with respect to claims arising hereunder.

2.8.1.8 **Liability for Premium.** Liability for Premium: Engineer shall be solely responsible for payment of all insurance premiums hereunder as the City shall not be obligated to pay any premium.

2.8.1.9 **Consultants:** Engineer shall require all Consultants whose subcontracts exceed \$100,000 to provide proof of professional liability insurance coverage meeting all requirements above except amount. The amount shall be commensurate with the amount of subcontract, but shall in no event be less than \$500,000 per claim.

2.8.2 **Delivery of Policies:** Certificates of insurance in substantially the form shown in Exhibit "E", reflecting that the terms of this Article have been met shall be deposited by Engineer with the Director at the time of execution of this Contract. Such certificate shall bear the name of the Project for which they are issued. Upon

request by the Director, the originals of all policies referred to above, or copies thereof certified by the agent or attorney-in-fact issuing them, shall be submitted by Engineer.

2.8.2.1 Policy Expiration Date: The expiration date must be at least 60 days from the date of delivery of Certificate of Issuance.

2.8.2.2 Notwithstanding the proof of insurance requirements set forth above, it is the intention of the parties hereto that Engineer shall, throughout the Term of this Contract, continuously and without interruption, maintain in force the required insurance coverage set forth herein. Failure of Engineer to comply with this requirement shall constitute a default of Engineer allowing the City, at its option, to terminate this Contract. Engineer agrees that the City shall never be argued to have waived or to be estopped to assert its right to terminate this Contract because of any acts or omissions by the City regarding its review of insurance documents provided by the Contract, its agents, employees, or assigns.

2.8.3 Other Insurance: Engineer will, upon request, furnish to the City adequate evidence or provisions for Social Security and Unemployment Compensation Insurance, to the extent such provisions are applicable to Engineer's operations hereunder.

2.9 Ownership of Documents: Engineer shall grant and assign and hereby does grant and assign to the City all right, title, interest and full ownership worldwide in and to any work, invention and all Construction Documents, or any modifications or improvements to them, and the copyrights, patents, trademarks, trade secrets and any other possessory or proprietary rights therein, that are discovered, conceived, developed, written or produced by the Engineer, its agents, employees, contractors and subcontractors pursuant to this Contract (collectively "Works"), to have and to hold the same unto the City absolutely.

2.9.1 Engineer agrees that neither it nor any of its agents, employees, contractors or subcontractors shall have any right to assert or establish a claim or exercise any of the rights embodied in any copyrights, patents, trademarks, trade secrets and any other possessory or proprietary rights related to the Works. If requested by the Director, the Engineer shall place a conspicuous notation upon any such Works which indicates that the copyright, patent, trademark or trade secret thereto is owned by the City of Houston.

2.9.2 Engineer shall execute all documents required by the Director to further evidence such assignment and ownership. Engineer shall cooperate with the City in registering, creating or enforcing any copyrights, patents, trademarks, trade secrets or other possessory or proprietary rights arising hereunder. If any assistance by the Engineer is requested and rendered pursuant to this Section, the City shall reimburse Engineer for all out-of-pocket expenses incurred by Engineer in rendering such assistance. On termination of this Contract or upon request by the Director, Engineer shall deliver all Works to the City. Engineer shall obtain written agreements in the form specified in Exhibit "J" from its agents, contractors and subcontractors performing work hereunder which bind them to the terms contained in this Section.

2.9.3 The Engineer may, however, retain copies of such Documents. The Engineer shall have the right to use such copies internally, but the Engineer may not sell, license or otherwise market such Documents. Upon request by the Director, the Engineer shall deliver such Documents to the City.

2.9.4 Engineer does not represent that the Documents are or are intended to be, suitable for use on other Projects or extensions of this Project, to the extent that the Documents are site-specific.

2.10 **Consultants:** Engineer shall not subcontract any part of its Contract without approval by the Director. Engineer shall be responsible for services performed by Consultants to the same extent as if the services were performed by Engineer. Engineer shall replace any Consultant when requested to do so by the Director, who shall state the reasons for such request. Engineer shall provide the Director with a copy of any of its Consultant subcontracts at Director's request.

2.11 **Payment of Consultants:** Engineer shall make timely payments to all persons and entities supplying labor, materials or equipment for the performance of this Contract in accordance with the State of Texas Prompt Payment Act. Engineer agrees to protect, defend, and indemnify the City from any claims or liability arising out of Engineer's failure to make such payments. Disputes relating to payment of MWBE subcontractors shall be submitted to arbitration in the same manner as any other disputes under the MWBE subcontract. Failure of Engineer to comply with the decisions of the arbitrator may, at the sole discretion of the City, be deemed a material breach leading to termination of this Contract.

2.12 **Participation in Bidding and Construction:** Engineer agrees not to participate in the bidding process as a bidder and not to engage in construction of the Project as a contractor or subcontractor. By written agreement, Engineer shall require each Consultant for Project engineering services to be bound by the requirements of this Section.

2.13 **Equal Employment Opportunity:** The Provisions set out in the attached Exhibit "C" are incorporated herein by reference for all purposes.

2.14 **Minority and Women Business Enterprises Participation:** It is the City's policy to ensure that Minority and Women Business Enterprises ("MWBEs") have the full opportunity to compete for and participate in City contracts. The objectives of Chapter 15, Article V of the City of Houston Code of Ordinances, relating to City-wide Percentage Goals for contracting with MWBEs, are incorporated into this Contract.

2.14.1 Engineer shall make good faith efforts to award subcontracts or supply agreements in at least «mwbe goals»% of the value of this Contract to MWBEs. The City's policy does not require Engineer to in fact meet or exceed this goal, but it does require Engineer to objectively demonstrate that it has made good faith efforts to do so. To this end, Engineer shall maintain records showing

- (a) subcontracts and supply agreements with Minority Business Enterprises,
 - (b) subcontracts and supply agreements with Women's Business Enterprises, and
 - (c) specific efforts to identify and award subcontracts and supply agreements to MWBEs.
- Engineer shall submit periodic reports of its efforts under this Section to the Affirmative Action Director in the form and at the times he or she prescribes.

2.14.2 Engineer shall require written subcontracts with all MWBE subcontractors and suppliers and shall submit all disputes with MWBE subcontractors to binding arbitration in Houston, Texas if directed to do so by the Affirmative Action Director. All Contracts must contain the terms set out in Exhibit "I". If Engineer is an

individual person (as distinguished from a corporation, partnership, or other legal entity), and the amount of the subcontract is \$50,000 or less, then the subcontract must also be signed by the attorneys of the respective parties.

2.15 Drug Abuse Detection and Deterrence

2.15.1 It is the policy of the City to achieve a drug-free workforce and workplace. The manufacture, distribution, dispensation, possession, sale, or use of illegal drugs or alcohol by contractors while on City Premises is prohibited. Engineer shall comply with all the requirements and procedures set forth in the Mayor's Drug Abuse Detection and Deterrence Procedures for Engineers, Executive Order No. 1-31 ("Executive Order"), which is incorporated into this Contract and is on file in the City Secretary's Office.

2.15.2 Before the City signs this Contract, Engineer shall file with the Contract Compliance Officer for Drug Testing ("CCODT"):

- .1 a copy of its drug-free workplace policy,
- .2 the Drug Policy Compliance Agreement substantially in the form set forth in Exhibit "F," together with a written designation of all safety impact positions and, if applicable (e.g. no safety impact positions), the Certification of No Safety Impact Positions, substantially in the form set forth in Exhibit "H."

2.15.3 If Engineer files a written designation of safety impact positions with its Drug Policy Compliance Agreement, it also shall file every 6 months during the performance of this Contract or on completion of this Contract if performance is less than 6 months, a Drug Policy Compliance Declaration in a form substantially similar to Exhibit "G." Engineer shall submit the Drug Policy Compliance Declaration to the CCODT within thirty days of the expiration of each 6-month period of performance and within 30 days of completion of this Contract. The first 6-month period begins to run on the date the City issues its Notice to Proceed or if no Notice to Proceed is issued, on the first day Engineer begins work under this Contract.

2.15.4 Engineer also shall file updated designations of safety impact positions with the CCODT if additional safety impact positions are added to Engineer's employee work force.

2.15.5 Engineer shall require that its subcontractors comply with the Executive Order, and Engineer shall secure and maintain the required documents for City inspection.

2.16 Confidentiality: Engineer and each of its Consultants shall keep all Documents and City work products or data it receives in the strictest confidence. Engineer shall not divulge such records or the information contained therein except as approved in writing by the Director or as otherwise required by law.

2.17 Licenses and Permits: Engineer shall obtain, maintain, and pay for all licenses, permits, and certificates including all professional licenses required by any statute, ordinance, rule, or regulation. Engineer shall immediately notify the Director of any suspension, revocation, or other detrimental action against his or her license.

ARTICLE 3
DUTIES OF THE CITY

3.1 **Fees, In General:** Subject to all the terms and conditions of this Contract, the City shall pay fees to the Engineer as specified in Sections 3.2 and 3.3 and for all services rendered by Engineer in accordance with the terms and conditions of this Contract, but subject to Section 3.4 hereof relating to appropriations made by the City, and subject to the Limit on Phase I Compensation and all lump sum prices. If services are suspended by the Director for a period exceeding twelve months, Engineer's fees will be subject to renegotiation, subject to Section 3.4.

3.1.1 If Engineer receives payment from the City for work performed by any Consultant or for materials provided by any supplier and Engineer withholds or has withheld payment to the Consultant or supplier on account of a deficiency in the quality or quantity of that Consultant's or supplier's work or materials, or if the Director reasonably believes that the work or a portion thereof cannot be completed for the remaining unpaid amount of any applicable limit or lump sum prices, the City may withhold the amount associated with such work or materials from any pending or future payments to the Engineer until the next regular payment to Engineer occurring after the City receives reasonable documentation that the deficiency has been remedied.

3.1.2 The City shall not authorize any work on the Project without issuing a Notice to Proceed.

3.2 **Basic Service Fees; Method of Payment:** Subject to all the terms and conditions of this Contract, the City shall pay, and Engineer agrees to accept as full compensation for the Basic Services, the following fees:

3.2.1 **Phase I - Preliminary Design:** Subject to the provision of Section 3.4 and subject to the Limit on Phase I Compensation, the City shall pay a fee for the complete performance of Phase I Basic Services work consisting of:

- .1 Raw Salary times Raw Salary Multiplier, plus
- .2 Reimbursable Expenses, plus
- .3 Consultant Subcontract Cost plus Consultant Markup for services that Engineer subcontracts to a Consultant, plus
- .4 Reasonable fees paid to contract personnel and personnel employed through employment agencies plus the Consultant Markup.

The maximum Phase I costs shall never exceed the Limit on Phase I Compensation. The Notice to Proceed for Phase I shall specify Phase I milestones and the Engineer's Raw Salary with corresponding classifications times the Raw Salary Multiplier, Reimbursable Expenses, and Consultant Subcontract Cost necessary to reach each milestone. Engineer shall perform all services necessary to complete each milestone.

3.2.2 **Phase II and III – Final Design and Construction Phase Services:** For Phase II and III services performed for a Construction Package, the City shall pay a lump sum amount agreed upon by the Director and Engineer which will be set out in the Notice to Proceed for such Construction Package. The Director and Engineer shall agree in writing to a Negotiated Lump Sum fee for each Phase II and III respectively for each Construction Package. prior to issuance of the

Phase II Notice to Proceed. Engineer guarantees that it shall perform all Phase II and III services for the Negotiated Lump Sum fees set out in the respective Notices to Proceed.

3.2.3 Engineer's Invoices:

- .1 Unless instructed otherwise in writing by the Director, Engineer must invoice the City for all Phase I amounts plus all Phase I-related Additional Services and Reimbursable Expenses before the Director issues a Notice to Proceed for Phase II. The Director shall not approve or pay any Phase I-related invoices delivered after issuance of the Phase II Notice to Proceed.
- .2 Unless instructed otherwise in writing by the Director, Engineer must invoice the City for all Phase II lump sum payments plus all Phase II-related Additional Services and Reimbursable Expenses before the Director issues a Notice to Proceed for Phase III. The Director shall not approve or pay any Phase II invoices delivered after issuance of the Phase III Notice to Proceed.
- .3 The amounts set out in the Phases I, II, and III Notices to Proceed, shall constitute Engineer's total compensation under the Contract for a Construction Package unless the Director requests in writing an Additional Service or Reimbursable Expense not related to any of the above phases.
- .4 If Director and Engineer do not agree to the lump sum amount for such Construction Package, then the Director may send notice to the Engineer deleting such Construction Package from the Contract.

3.2.4 To receive fees for Phase I Services, Engineer shall submit copies of original invoices showing the corresponding Phase I performed for each Construction Package and not previously invoiced. The invoice must include itemizations supporting the costs included. The itemization shall include, where applicable:

- .1 a breakdown of the type and cost of each item included within the definition of Reimbursable Expenses;
 - .2 a breakdown of the individual expenditures allowable as travel costs in the definition of Reimbursable Expenses;
 - .3 the actual invoice cost of Consultant Subcontract Cost plus Consultant Markup, including a copy of that the Consultant's invoice;
 - .4 the number of hours expended by Engineer's employees times Raw Salary times Raw Salary Multiplier for each Construction Package and upon request by the Director a copy of employee time sheets;
 - .5 reasonable costs of contract personnel and personnel employed through employment agencies plus the Consultant Markup; and
 - .6 a breakdown of the work performed in the Construction Package and a percent of the total that is completed.
- 3.2.5 For Phase II and III, the City shall make partial payments of the fees on the basis of monthly invoices submitted by Engineer and approved by the Director. The invoices must show for each Construction Package the following on the standard format provided by the City:
- .1 the percentage of the total services completed in the applicable Phase in the preceding month;

- .2 a summary of the services performed for each Construction Package during the period covered by the invoice; and
- .3 the amount due for such services. Upon request of the Director, Engineer shall submit reports to the Director for informational purposes, showing all of the information set out in 3.2.4, although such information shall not affect the method by which Engineer is paid.

3.2.6 The amount of partial payments due for services performed during Phase II shall be a percentage of the total fee due for each Construction Package for Phase II services equal to the percentage of the total Phase II services performed during the period covered by the invoice. The percentage of the total fee due for partial payments for Phase II services shall not exceed the following:

<u>MILESTONE</u>	<u>MAXIMUM PHASE II PAYMENT</u> (Cumulative)
1. Research Utilities	«resutperc»%
2. Plot Topographic Survey & Utilities	«plotperc»%
3. Submit 50% Drawings	«submit50»%
4. Submit 70% Drawings & Draft Specifications	«submit70»%
5. Submit Final Drawings & Specifications	«finalperc»%
6. Bid-Ready Drawings and Specifications	95% of
7. Completion of Phase II Services	100% (less any Phase II payments previously made)

3.2.7 The amount of partial payment due for services performed during Phase III shall be a percentage of the lump sum fee equal to the percentage of the total services for that Phase performed during the period covered by the invoice. After Engineer has completed the performance of all the required services for Phase III, the City shall pay Engineer the total amount owed for that Phase less any amounts previously paid pursuant to the monthly invoices.

3.2.8 All invoices for the Basic Services are subject to approval by the Director and are due and payable thirty days after receipt and approval by the Director. All payments shall be made by check. Such checks shall be made payable to Engineer and payments shall be addressed to Engineer at its address specified herein for notices. The City agrees that it will not unreasonably delay or withhold payment or approval of any invoice. Neither partial payments made hereunder nor approval of invoices or services by the Director shall be construed as final acceptance or approval of that part of Engineer's services to which such partial payment or approval relates nor shall such payments be construed as relieving Engineer of any of its obligations hereunder with respect thereto.

3.2.9 With each monthly invoice Engineer shall submit a copy of the updated Project Schedule, a brief narrative of the services performed in the preceding month, and a list of the planned activities for the following month. Any request for modification of the approved Project Schedule shall be submitted by Engineer in writing for the Director's consideration.

3.3 **Fees for Additional Services; Method of Payment:** Subject to all the terms and conditions of this Contract, the City shall pay and Engineer agrees to accept, as full compensation for the Additional Services described in Section 2.6, the fees specified in this Section.

3.3.1 **Survey Additional Services:**

- .1 For Route Topographical Survey set forth in Section 2.6.1, the City shall pay Engineer a portion of the Negotiated Lump Sum fee according to the terms in the applicable Notice to Proceed or at the rate of \$«M_1survey» per linear foot for «M_1surveydescript», and \$«M_2survey» per linear foot for «M_2surveydescript» of actual Survey performed. If these services are provided by the Engineer's Consultant, the City shall pay Engineer at the above rates plus Consultant markup.
- .2 For Survey Additional Services set forth in Sections 2.6.2 and 2.6.3, the City shall pay Engineer in accordance with Section 3.3.3.

3.3.2 For Drug Detection and Deterrence Additional Services set forth in Section 2.6.4, the City shall pay Engineer a portion of the Negotiated Lump Sum fee according to the terms in the applicable Notice to Proceed in advance or as follows:

- .1 The cost of invoiced laboratory analyses necessary for personnel producing services under this Contract, and
- .2 Raw Salary times Raw Salary Multiplier for employees' time not-to-exceed one hour total for each random test conducted.

3.3.3 For the Other Additional Services set forth in Section 2.6.5 the City will pay Engineer a portion of the Negotiated Lump Sum fee according to the terms in the applicable Notice to Proceed.

3.3.4 To receive fees for Additional Services, Engineer shall submit copies of original invoices showing the corresponding Additional Services performed and not previously invoiced. The invoice must include itemizations supporting the costs included. The itemization shall include, where applicable:

- .1 a breakdown of the type and cost of each item included within the definition of Reimbursable Expenses;
- .2 a breakdown of the individual expenditures allowable as travel costs in the definition of Reimbursable Expenses;
- .3 the actual invoice cost of Consultant Subcontract Cost plus Consultant Markup, including a copy of that the Consultant's invoice;
- .4 the number of hours expended by Engineer's employees times the Raw Salary times the Raw Salary Multiplier for each Additional Service and upon request by the Director a copy of employee time sheets;
- .5 Reasonable contract personnel cost of personnel and personnel employed through employment agencies, plus Consultant Markup; and
- .6 A reference to the work description in the applicable Notice to Proceed that authorize the item.

3.3.5 Claims for Additional Services shall be submitted for payment within a maximum of 60 days from the date of completion of the Additional Service.

3.3.6 The Additional Services Fees incurred shall be paid by the City in the same manner as specified for payment for Basic Services in Section 3.2.8, above.

3.4 **Limit of Appropriation:** Engineer recognizes that under certain provisions of the Charter of the City of Houston, the City may not obligate itself by contract to an extent in excess of an amount therefor appropriated by the City Council and further recognizes that only \$«basicappro» has been appropriated and budgeted by City Council to pay the Cost of Basic Services hereunder and that only \$«addappro» has been appropriated and budgeted by the City Council to pay the cost of Additional Services hereunder for a total amount of \$«totalappro».

3.4.1 In the event the appropriation for Basic Services is insufficient to compensate Engineer for Basic Services in accordance with the payment provisions of Article 3 hereof, Engineer may suspend its Basic Services at such time as the total appropriation for Basic Services is expended, but shall resume such Basic Services, if and when authorized by the Director as provided elsewhere herein, upon transfer of funds by the Director or appropriation of additional funds by the City Council for Basic Services.

3.4.2 In the event the appropriation for Additional Services is insufficient to compensate Engineer for authorized Additional Services in accordance with the payment provisions of Article 3 hereof, Engineer may suspend its Additional Services at such time as the total appropriation for Additional Services is expended, but shall resume such Additional Services, if and when authorized by the Director as provided elsewhere herein, upon transfer of funds by the Director or appropriation of additional funds by the City Council for Additional Services.

3.4.3 The Director may authorize the transfer of funds between Basic Services and Additional Services when necessary to continue services by issuing a Supplemental Notice that conforms to the limits set out in Section 2.6.5.24 of this Agreement.

3.5 **Certain Duties of the City:** In addition to its other duties under this Contract, the City shall perform the following services:

- .1 When requested to do so in writing by the Engineer, provide access to information such as existing drawings, maps, field notes, statistics, computations, and other data in the possession of the City which in the Director's opinion will assist the Engineer in the performance of its services hereunder; and
- .2 Examine the Construction Documents submitted by the Engineer and render decisions pertaining thereto within a reasonable time so as to avoid unnecessary delay in the progress of the Engineer's services.

ARTICLE 4

TERMINATION

4.1 **Termination by the City for Convenience:** The Director may terminate Engineer's performance under this Contract at any time by giving seven days written notice to Engineer. As soon as possible, but not later

than the effective date of such notice, Engineer shall, unless the notice directs otherwise, immediately discontinue all services in connection with this Contract and shall proceed to promptly cancel all existing orders and Consultant subcontracts insofar as such orders or subcontracts are chargeable to this Contract. Within seven days after the effective date of notice of termination, Engineer shall deliver copies of all Documents to the Director and submit an invoice showing in detail services performed under this Contract to the date of termination. The City shall then pay the prescribed fees to Engineer for services actually performed under this Contract up to the date of termination less such payment on account of charges previously made, in the same manner as prescribed in Sections 3.2 and 3.3. Any installments or lump sum fees shall be prorated in accordance with the progress of the Work at the effective date of termination. Engineer may, if necessary, submit invoices for vendor and Consultant charges reasonably necessary for the Project which are incurred prior to the effective date of termination and received by Engineer after its initial termination invoice.

4.1.1 Engineer understands and acknowledges that the City may determine not to proceed with subsequent phases after the completion of Engineer's services for Phase I - Preliminary Design or Phase II - Final Design. In such event the Director shall provide Engineer with a written notice of his intent to terminate this Contract and this Contract shall terminate upon Engineer's receipt of such written notice. Any sums paid to Engineer prior to its receipt of such written notice plus any retained sums to which Engineer is entitled shall constitute full and complete compensation for the services rendered to the date of receipt of the written notice and Engineer agrees that it will not be entitled to any additional sums.

4.2 **Termination by the City for Cause:** City may terminate this Contract in the event of default by Engineer and a failure by Engineer to cure such default after receiving notice thereof, all as provided in this Section. Default by Engineer shall occur if Engineer fails to observe or perform any of its duties under this Contract, Engineer dies (if an individual) or for some other reason is unable to render services hereunder. Should such a default occur, the Director will deliver a written notice to Engineer describing such default and the proposed date of termination. Such date may not be sooner than the 7th day following receipt of the notice. The Director, at his or her sole option, may extend the proposed date of termination to a later date. If prior to the proposed date of termination, Engineer cures such default to the Director's satisfaction, then the proposed termination shall be ineffective. If Engineer fails to cure such default prior to the proposed date of termination, then City may terminate its performance under this Contract as of such date, and Engineer shall deliver all Documents to the Director within seven days of the effective date of the termination. In the event of a termination for cause, City may withhold any further payments to the Engineer until the work for which not to exceed caps or lump sum amounts have previously been established. If the City's cost of obtaining completion of the work by other engineers exceeds the remaining contract amounts unpaid to Engineer, or if the City sustains other charges as a result of the default, the City shall not be obligated to make any further payment to Engineer. This provision does not relieve Engineer of any other obligation Engineer may have to the City.

4.3 **Termination by Engineer for Cause:** Engineer may terminate its performance only upon default of the City. Should such default occur, Engineer shall have the right to terminate all or part of its duties under this Contract as of the 14th day following the receipt by the City of a notice from Engineer describing such default and

intended termination, provided: (1) such termination shall be ineffective if within the fourteen day period the City cures the default and (2) such termination may be stayed beyond such fourteen day period, at the sole option of Engineer, pending cure of the default.

ARTICLE 5

MISCELLANEOUS PROVISIONS

5.1 **Independent Contractor:** The relationship of Engineer to the City shall be that of an independent contractor.

5.2 **Business Structure and Assignments:** Engineer shall not assign this Contract at law or otherwise or dispose of all or substantially all of its assets without the Director's prior written consent. Nothing in this clause, however, prevents the assignment of accounts receivable or the creation of a security interest as described in §9.406 of the Texas Business & Commerce Code. In the case of such an assignment, Engineer shall immediately furnish the City with proof of the assignment and the name, telephone number, and address of the Assignee and a clear identification of the fees to be paid to the Assignee.

5.2.1 Engineer shall not delegate any portion of its performance under this Contract without the Director's prior written consent.

5.3 **Parties in Interest:** This Contract shall not bestow any rights upon any third party, but rather, shall bind and benefit the City and Engineer only.

5.4 **Non-waiver:** Failure of either party hereto to insist on the strict performance of any of the agreements herein or to exercise any rights or remedies accruing hereunder upon default or failure of performance shall not be considered a waiver of the right to insist on and to enforce by any appropriate remedy, strict compliance with any other obligation hereunder or to exercise any right or remedy occurring as a result of any future default or failure of performance.

5.5 **Applicable Laws:** This Contract is subject to and shall be construed in accordance with the laws of the State of Texas, the City Charter and Ordinances of the City of Houston, and to the extent required by any agreement between the City and any Federal agency, the laws of the federal government of the United States of America and all rules and regulations of any regulatory body or officer having jurisdiction over this Project. This Contract is performable in Harris County, Texas.

5.6 **Notices:** All notices required or permitted hereunder shall be in writing and shall be deemed received when actually received or if earlier, on the third day following deposit in a United States Postal Service post office or receptacle with proper postage affixed (certified mail, return receipt requested) addressed to the other party at the address prescribed in the preamble hereof or at such other address as the receiving party may have theretofore prescribed by notice to the sending party.

5.7 **Captions:** The captions at the beginning of the articles and sections of this Contract are guides and labels to assist in locating and reading such articles and sections and, therefore, will be given no effect in construing this Contract and shall not be restrictive of or be used to interpret the subject matter of any article, section, or part of this Contract.

5.8 **Acceptances and Approvals:** Any acceptance or approval by the City, or its agents or employees shall not constitute nor be deemed to be a release of the responsibility and liability of Engineer, its employees, agents, Consultants, or suppliers for the accuracy, competency, and completeness for any Documents prepared or services performed pursuant to the terms and conditions of this Contract, nor shall acceptance or approval be deemed to be an assumption of such responsibility or liability by the City, or its agents and employees, for any defect, error or omission in any Documents prepared or services performed by Engineer, its employees, agents, Consultants or suppliers pursuant to this Contract.

5.9 **Inspections and Audits:** Representatives of the City shall have the right to examine and review all books, records, and billing documents which are directly related to performance or payment under this Contract. Engineer shall maintain such books, records, and billings for three years after the cessation of its other duties under this Contract. This right of audit extends to the records of Engineer's Consultants, and Engineer's agreements with its Consultants shall provide this right to the City.

5.10 **Mediation:** At the sole option of the Director, any claim, dispute or other matter in question arising out of or related to this Contract shall be subject to non-binding mediation as a condition precedent to the institution of legal or equitable proceedings by either party. The parties shall share the mediator's fee and any filing fees equally conditioned upon the City's appropriation of sufficient funds to pay such fee. The mediation shall be held in Houston, Texas.

5.11 **Construction Budget:** If a construction budget for this Project is indicated in an exhibit to this Contract, Engineer will use its best efforts to design the Project so that it is likely that the Project may be constructed within that budget. At any point Engineer becomes reasonably aware that the construction budget will likely be exceed, Engineer will notify City of its awareness of that likelihood.

5.12 **Site Conditions:** Engineer understands that it is in the interest of the City that the construction of the Project being designed by the Engineer under this Contract will proceed in a prompt and efficient manner. Engineer will make a reasonable effort to identify and note on its construction documents interferences that will be encountered on the site of the construction by the construction contractor.

5.13 **Ambiguities:** In the event of any ambiguity in any of the terms of this Contract, it shall not be construed for or against any party hereto on the basis that such party did or did not author the same.

5.14 **Entire Agreement:** This Contract merges the prior negotiations and understandings of the parties hereto and embodies the entire agreement of the parties, and there are not other agreements, assurances, conditions, covenants (expressed or implied) or other terms with respect to the subject matter hereof, whether written or verbal, antecedent or contemporaneous, with the execution hereof.

5.15 **Survival:** Engineer shall remain obligated to the City under all clauses of this Contract that expressly or by their nature extend beyond the expiration or termination of the term of this Contract, including but not limited to the provisions of Section 2.9, Ownership of Documents.

5.16 **ENGINEER DEBT: IF ENGINEER, AT ANY TIME DURING THE TERM OF THIS AGREEMENT, INCURS A DEBT, AS THE WORD IS DEFINED IN SECTION 15-122 OF THE HOUSTON CITY CODE OF ORDINANCES, IT SHALL IMMEDIATELY NOTIFY THE CITY**

CONTROLLER IN WRITING. IF THE CITY CONTROLLER BECOMES AWARE THAT ENGINEER HAS INCURRED A DEBT, SHE SHALL IMMEDIATELY NOTIFY ENGINEER IN WRITING. IF ENGINEER DOES NOT PAY THE DEBT WITHIN 30 DAYS OF EITHER SUCH NOTIFICATION, THE CITY CONTROLLER MAY DEDUCT FUNDS IN AN AMOUNT EQUAL TO THE DEBT FROM ANY PAYMENTS OWED TO ENGINEER UNDER THIS AGREEMENT, AND ENGINEER WAIVES ANY RECOURSE THEREFOR.

5.17 **Pay or Play:** The requirements and terms of the City of Houston Pay or Play program, as set out in Executive Order 1-7, are incorporated into this Agreement for all purposes. Engineer has reviewed Executive Order No. 1-7 and shall comply with its terms and conditions as they are set out at the time of City Council approval of this Agreement.

The Parties have executed this Contract in multiple copies, each of which shall be an original, as of this the date countersigned by the City Controller of the City of Houston.

ENGINEER:

«ENGINE»

By: _____
Name: «engineer»
Title: «engtitle»

ATTEST:

By: _____
Corporate Secretary

Tax Identification No. «taxID»

CITY:

THE CITY OF HOUSTON

By: _____
Mayor

ATTEST:

By: _____
City Secretary

APPROVED:

Director, Department of Public Works and
Engineering

APPROVED AS TO FORM:

Assistant City Attorney
L.D. File No. _____

COUNTERSIGNED:

City Controller

DATE COUNTERSIGNED: _____

EXHIBIT A

SCOPE OF SERVICES AND DELIVERABLE DOCUMENTS CITY OF HOUSTON CONTRACT FOR ENGINEERING SERVICES

«PROJNAME»

WBS No. «WBSnum»

1.0 GENERAL

The Engineer shall provide professional engineering services as described in the Contract, and as further defined by this Exhibit A, Scope of Services.

1.1 Description of Project

The Project generally is described as follows:

«exhibitA»

1.2 Reference Standards and Criteria

- A. “City of Houston Department of Public Works and Engineering, Infrastructure Design Manual,” hereinafter referred to as “City Design Manual.”
- B. Technical Paper No. 100 – “Storm Sewer Design Applications for the City of Houston, Texas, Capital Improvement Plan Projects”

1.3 Review of Existing Information

- A. Existing utility information, existing record drawings of previous projects, and existing survey information are readily available to the Engineer and the public. The Director shall provide access to such information. It is the responsibility of the Engineer to physically gather this information from all available sources.
- B. The Engineer shall review applicable existing information and develop independent recommendations based on the information. It is expected that the investigative work involved in these previous engineering efforts will not be duplicated, except as included in this Scope of Services.

2.0 BASIC SERVICES

2.1 General

- A. The Engineer shall reference the City’s Project Title and City’s Project WBS Numbers on all correspondence and submittals.
- B. The Engineer shall manage the efforts of the Project team members and Consultants, assign manpower, delegate responsibilities, review work progress, monitor conformance to the scope regarding the budget and schedule, and otherwise direct the progress of the work.
- C. Periodic meetings shall be held to review the progress of the engineering effort, or to address other issues which may arise. The Director shall initiate meetings that include the Engineer and his Consultants, and if necessary, the Director and other applicable parties. The Engineer shall prepare and deliver meeting record memorandum of decisions and action items to the City within 2 working days after each meeting.

- D. The Engineer shall notify the Director immediately of any deviation from the Scope of Engineering Services and Fee agreed to in this Scope of Services. The Engineer shall not perform services outside of the Contract scope without an Amendment to this Contract.
- E. Route all written communication with regulatory agencies, neighborhood associations, and City Council through the Director.
- F. Submit invoices on City's standard form to document and present the current status of each milestone noted within attached Exhibit "B" (Project Schedule), to record activities and deliverables completed within the month, and to note activities planned for next month.

2.2 Phase I - Preliminary Design

During the Phase I – Preliminary Design, and after written authorization from Director, Engineer shall perform the following Phase I services during the Project:

- A. Prepare a Preliminary Engineering Report (PER) which contains the findings and recommendations resulting from this Phase of work. Include the following minimum items:

1. EXECUTIVE SUMMARY

- a. Project Location - Describe project boundaries and locations within City of Houston limits with Key Map references. Include location and lay-out maps.
- b. Statement of Problem - Describe deficiencies of the system.
- c. Evaluation of Alternative Solutions - Provide summary of principal findings and conclusions from the evaluation of alternatives, based on specific cost and non-cost criteria.
- d. Findings from Phase I Design Activities - Summarize the findings that may impact the alternative solutions. Also, summarize other issues associated with:
 - 1) Geotechnical Investigation
 - 2) Environmental Site Assessment
 - 3) Real Estate Acquisition
 - 4) Traffic Control Analysis/Requirements
 - 5) Permits
 - 6) Other items constructed in Right of Way including sidewalks, driveways, encroachments, additions or replacements.
 - 7) Other potential conflicts and special issues, such as inter-agency coordination and tree impacts.
- e. Recommended Project - Describe the recommended alternative, how it solves the described system deficiencies, and tabulate the design criteria.
- f. Estimated Construction Costs - Include Construction Costs for each alternative evaluated.

2. INTRODUCTION

- a. Project Location – Describe generally the Project boundaries and locations within City of Houston limits with Key Map references. Include project location and vicinity maps.
- b. Statement of Problem - Describe deficiencies of the system. Include history of the problem, if available.
- c. Existing Conditions -
 - 1) Existing Utilities - Indicate location, size, condition, and capacity of all public utilities. Indicate location and size of private utilities. Summarize coordination efforts with each utility. Indicate substandard or problem locations and describe deficiencies.
 - 2) Existing Right-of-way - Describe width of right-of-way. Indicate if right-of-way is adequate for proposed Project and if encroachments exist.
 - 3) Redline the GIMS maps showing the proposed connections to existing utilities, upgrades/replacements of existing utilities or construction of new utilities.
 - 4) For paving and storm sewer projects include the following:
 - a) Existing pavement - Describe pavement widths, lane use, pavement type and condition, composition thickness and age of pavement, and presence of curb and gutter or drainage ditches. Indicate substandard or problem locations and describe deficiencies.
 - b) Existing Roadway Geometrics - Describe vertical and horizontal geometrics, corner radii, esplanade widths and openings, and intersection and driveway locations. Indicate substandard or problem locations and describe deficiencies.
 - c) Existing Traffic Control - Describe existing traffic control measures. Indicate locations of traffic signals and discuss operation. Indicate substandard or problem locations and describe deficiencies.
 - d) Traffic Volumes - Discuss volumes, composition, and forecast of traffic. Indicate existing speed limits.
 - e) Existing Drainage - Indicate watershed and describe existing drainage system noting location, size, condition, and capacity. Indicate substandard or problem locations and describe deficiencies.
 - 5) For Wastewater Facility Project, include the following:
 - a) Existing Condition Assessment – Perform existing conditions assessments and summarize the findings for the components of the project under consideration. The summary shall include but not be limited to structural, mechanical, and electrical components. Also summarize the existing facilities operation conditions.
 - b) Record Drawings – Compare record drawings with actual conditions of the project facility.
 - c) Interviews – Perform interviews with the facility operators to further identify changes not shown on the record drawings or previously identified.

- d) Project Base Solution - Describe the base solution if offered in the City's Project description/scope of services.

3. FINDINGS FROM PHASE I DESIGN ACTIVITIES

a. Utilities Research

- 1) The Engineer shall research all available information and show on schematic layouts of the project all existing water mains and appurtenances, well collection lines, sanitary sewer and storm water lines and facilities (house service lines, manholes, etc.), and lot lines from subdivision plats, telephone, power, gas, cable TV, and other private utilities.
- 2) On major transmission pipelines, the Engineer shall contact the various pipeline companies for their assistance to determine the product material, type of pipe material, depth, and routing of pipelines.
- 3) Summarize coordination efforts with other utilities. Indicate problem locations, describe deficiencies/conflicts and program for resolution.

- b. Proposed Right-of-way or Real Estate Acquisitions - Indicate right-of-way and easement needs, and/or other required real estate acquisitions (identification of number, location and sizes of necessary parcels based upon readily available information).

- c. Phase I Environmental Site Assessment - Summarize findings and recommendations, when authorized.

- d. Geotechnical Investigation - Summarize findings and recommendations, when authorized.

- e. Inter-agency Coordination - Identify potential conflicts in time and space with projects from other City departments and other agencies; and offer recommended solutions.

- f. Floodplain/Floodway Analysis - Findings and recommendations, if applicable.

- g. Permits and Licenses - Describe permits or licenses required from governmental agencies, public or private utilities, railroads, HCFCD, TXDOT, NPDES, wetlands, etc.

- h. Tree/Landscaping Impacts - Describe the potential impact on existing trees/landscaping. Delineate between protected and non-protected trees under the City's ordinance and measures to protect those trees covered by the ordinance.

4. EVALUATIONS AND RECOMMENDATIONS

- a. Evaluation of Alternatives - Provide a summary of principal findings and conclusions from the evaluation of alternatives, based on specific cost and non-cost criteria.

- b. Recommended Project - Describe the recommended alternative, how it solves the described system deficiencies, and tabulate the design criteria. Also, provide the following:

- 1) Recommended Utility Improvements - Discuss the recommended improvements to public utilities and indicate locations of potential conflict with other utilities.

- 2) Construction Traffic Control Plan - Provide traffic control concept, noting detours, phases, sequencing, construction zones, temporary pavement requirements and temporary signalization. Identify potential disruptions to local businesses and measures to address access during construction.
- 3) Storm Water Pollution Prevention Plan - Describe the basic approach to storm water pollution prevention and what measures will be implemented.
- 4) Tree Protection/Mitigation and Landscaping - Describe general approach to landscaping, tree protection, and tree mitigation, as required.
- 5) For paving and storm sewer projects, include the following:
 - a) Recommended Pavement - Describe recommended pavement widths, lane use, and structure.
 - b) Recommended Improvements to Roadway Geometrics - Describe recommended corner radii, esplanade widths and openings, intersection improvements, and measures taken to correct deficiencies. Indicate proposed speed limits.
 - c) Recommended Traffic Control - Describe the recommended improvements to existing traffic control measures. Discuss recommended improvements to traffic signals, and locations and configurations of proposed signals.
 - d) Recommended drainage improvements - Discuss findings of the hydraulic analysis. Describe recommended improvements to the drainage system. Include drainage area maps and hydraulic analysis calculations
- 6) For Water and Wastewater Facilities include the following:
 - a) Recommended Project-Discuss the recommended base project including but not limited to the structural, equipment, piping and pumping components. Provide contrast and comparison for the recommendation to replace or rehabilitate the facility components.
 - b) Operational Impact Analysis – Describe issues that may effect existing system operations. Provide definition of potential problems, recommendation for solution, additional services that may be required, and discuss needed resources/data/information internal as well as external.

5. EXHIBITS:

- a. Project location maps - Prepare a color map of Project Area(s), in format acceptable to Director, identifying City Council Districts in which Project is located. Include a separate vicinity map of general Project Area(s).
- b. Typical cross-sections - Show horizontal dimensions, pavement structure makeup and thickness, typical locations of existing and proposed buried utilities, right-of-way and easements, sidewalks, shoulders, and drainage ditches.
- c. Plan Sheets - Show proposed water mains, sanitary sewers, storm sewers and pavement footprint with alternate(s), where applicable, in plan view.
- d. Right-of-way maps - Show dimensions and locations of existing and proposed right-of-way and easement locations.

6. ESTIMATED CONSTRUCTION COST

- a. Provide the estimated Construction Cost of the recommended Project and all viable alternatives or options.

7. APPENDICES

- a. For Wastewater Facilities – Plants and Lift Stations (as applicable)
 - 1) Supporting Calculations
 - 2) Hydraulic Profile and Hydraulic Analysis
 - 3) Process Flow Diagram and Process Operation Analysis
 - 4) Pump curves
 - 5) Wet Well Sizing
 - 6) Force Main Sizing
 - 7) Electrical One-Line Diagram
 - 8) Instrumentation Diagram
 - 9) Historical & Future Flow Rate Calculations

- B. Deliver to Director a Preliminary Engineering Report including applicable exhibits and recommended construction packaging for the Project.
- C. Prepare and participate in the Technical Review Committee (TRC) meeting. The purpose of the TRC meeting is for the Engineer to present the recommended projects to the TRC for approval. As part of the TRC, the Engineer shall prepare a Microsoft Power Point presentation, a TRC agenda, and an executive summary of the project showing the alternatives, recommendations, and estimated construction costs. The Engineer will provide equipment for preparation and presentation of the TRC meeting. Prepare minutes of the TRC meeting and record of decision and action items.
- D. At the conclusion of the TRC, submit a revised estimate of probable construction cost, based on the outcome of the TRC. Revise the PER in response to the Technical Review Committee's record of decisions and action items and furnish 3 final copies of the PER. Submit final PER in PDF Format on a CD in a single file with a Table of Contents.
- E. Upon acceptance by the TRC of the need to acquire additional right-of-way or easements for the project, the Director shall issue to the Engineer a Notice to Proceed for the preparation of right-of-way and easement documents. These documents shall be delivered to the Director within the time specified in the Notice to Proceed.
- F. Schedule of Design Activities:
The Engineer shall submit a schedule that contains actual dates, based on the date of the Notice to Proceed and the number of calendar days from Exhibit "B" milestones.

2.3 Phase II - Final Design

- A. Estimate of Construction Cost

1. Refer to the City Design Manual.
 2. The Engineer shall submit an estimate of Construction Cost at the 50 percent, 70 percent, and Final Drawings stages.
- B. Agency Approvals and Signatures
1. Refer to the City Design Manual.
 2. The Engineer shall obtain required signatures from other governmental agencies, public utilities, and private utilities, which may impact the Project prior to final approval by the Department of Public Works and Engineering. Governmental agencies include, but are not limited to, Harris County and Harris County Flood Control District. Utility signatures include, but are not limited to, AT&T, Centerpoint Energy-Electric, Centerpoint Energy-Gas, and cable TV.
 3. Obtain necessary approvals (permits, license agreements, etc.) from TXDOT, HCFCFCD, railroad and pipeline companies prior to final approval by the Department of Public Works and Engineering.
- C. Engineering
1. The Engineer is responsible for quality and completion of the final design as requested by the Director.
 2. The Engineer shall specify the minimum acceptable performance and/or material standards associated with temporary facilities and structures that are determined necessary to implement the Project, that are potentially cause for significant disruption to local communities or businesses, and that are not solely for the convenience of the contractor.
 3. The Engineer shall review results from additional services prior to submittal to the City and where applicable, incorporate this information into the Final Design documents. Such additional services may include, but not be limited to, survey, geotechnical, environmental, traffic control, storm water pollution prevention plans, street lighting plans, tree mitigation/planting plans and special studies.
 4. The Engineer shall incorporate the City Standard Details as applicable. The Engineer shall review each Standard Details and edit as necessary to suit Project-specific requirements and to meet the design intent of the Project. Revisions to the Standard Details shall not be incorporated based solely on Engineer's preference, but are subject to review and acceptance by the Director. The Engineer shall notify the Director of all proposed changes to Standard Details and provide reasons for such proposed changes. The Engineer shall prepare additional nonstandard details necessary for bidding and construction of the Project.
 5. The Engineer shall prepare specifications in accordance with the Construction Specification Institute (CSI) standard format adopted by the City. The Engineer shall use the City Standard Specifications Table of Contents for Construction Documents as a guide for organization of the Contract Documents. The City Standard Specifications are prepared to include the requirements, features, construction materials, and related items desired by the City based on the City's experience and needs. The Engineer shall review each Standard Specification and supplement as necessary to suit Project-specific requirements and to meet the design intent of the Project. Supplements to the Standard Specifications shall not be incorporated based solely on the Engineer's preference. Supplements are subject to review and acceptance by the Director. The Engineer shall prepare additional nonstandard specifications necessary for bidding and construction of the Project. Incorporate Guide Specifications necessary for bidding and construction of the Project.

6. The Engineer shall incorporate the front-end documents provided by the City into the Project specifications.
7. The Engineer shall verify findings from Utility Plan Review with the results of the Route and Site Topographical Survey Services (see Additional Services) and identify potential conflicts during construction. Proposed designs shall strive to avoid conflicts where physically and financially feasible. Relocations of private utilities shall be coordinated with the City of Houston as early in design process as possible.
8. The Engineer shall perform the following work associated with the water plants projects.
 - a. Review existing pipe lay schedule and record drawings. Identify special issues which affect the proposed connection(s), and incorporate findings into final design. Also, determine the joint configuration for the existing piping and design accordingly.
 - b. Design water plant piping as welded joint steel pipe. Flange joints shall be used for connection to meters, valves, and other couplings, as per Engineer's design. Avoid direct bury of couplings or other similar types of connections. Provide appropriate detail views and sections.
 - c. Identify proposed connections as "Critical Locations." The Contract documents, as a minimum, should address the procedures described in item 3.13 of supplementary specification Section 02317 - Excavation and Backfill for Utilities, and 3.05 of supplementary specification Section 02511 - Water Mains. Identified "Critical Locations" shall be paid separately and listed in the City's standard construction Document 00410 - BID FORM, per each location shown on the Drawings.
 - d. Develop valve and water plant shut-down sequences for situations in which construction could necessitate a partial or entire shut-down. Plan sequences in coordination with the assigned project manager of the City Drinking Water Operations Branch of the Department of Public Works and Engineering Public Utilities Division ("Drinking Water Operations"). Include sequences in Bid Documents. Prepare a plan view showing locations of existing valves, and required working condition status to operate during Construction.
 - e. During design, conduct a coordination meeting between the Engineer, Construction Manager, Engineering and Construction (E&C), and Drinking Water Operations personnel to discuss potential problems with proposed construction. Incorporate particular needs into the design such as time of outages, etc.
 - f. Identify in Bid Documents "critical stages of work" requiring shut-down of the facility. Written notification of minimum of 72 hours is required before beginning construction. Construction is to be performed in the presence of the assigned City Drinking Water Operations Branch project manager.
9. The Engineer shall prepare a construction duration estimate for the proposed project. The construction duration estimate shall be based upon tasks, subtasks, critical dates, milestones, and deliverables and shall consider the interdependence of the various items, and adjacent construction projects. Scheduling software (such as Primavera, Suretrak, and Microsoft Project) may be used to assist in the construction duration estimate preparation or other available industry methodologies. The Engineer must substantiate the construction duration estimate to the City and assist the City in interpreting the estimate. The construction duration estimate shall be submitted no later than the Final Drawing and Specification milestone submittal, as set out in section 3.2.6 of the Contract.

D. Application and Approval of Permits

1. The Engineer shall secure approval for the Building Permit Application, which provides the Director with documents necessary for obtaining a City Building Permit.
2. The Engineer shall secure the Floodplain permits from the Floodplain Administrator of the City of Houston necessary for the construction of the project.
3. The Engineer shall secure required approvals, signatures or permits from other governmental and non-governmental entities such as, but not limited to, Harris County Flood Control District, Texas Department of Transportation, Texas Department of Licensing and Regulation, railroads and pipelines.

E. Bidding Services

1. The Engineer shall assist the City in conducting the pre-bid conference, and submit meeting minutes within 3 working days.
2. The Engineer shall prepare necessary addenda to address issues or clarifications necessary for completion of the bidding process.
3. The Engineer shall furnish a tabulation of bids received with a written recommendation for the award of a construction contract, and submit within 24-hours after the bid opening.
4. Prepare a set of Conformed Drawings (as-bid drawings) immediately after bids are received. Conformed Drawings represent the Bid Documents revised to reflect all addenda changes made during the bid period.

2.4 Phase III - Construction Phase Services

Upon issuance of a Notice to Proceed for Phase III services setting out the agreed lump sum for such services, Engineer shall provide professional services during construction to assist in obtaining a completed project in accordance with the purpose and intent of the Construction Documents. Phase III Services shall include, but not be limited to the following:

- A. Participate in pre-construction conferences and monthly construction progress meetings.
- B. Make visits to the Project site at appropriate intervals as identified in Exhibit "A" as construction proceeds to observe and provide a written construction site observation report on the progress and the quality of the executed Work.
- C. Site visits should occur during times when the contractor is actively performing major construction activities. Site visits should be coordinated with Construction Project Manager. The frequency of these visits should be at least monthly (no greater than every 30 calendar days), after the contractor has mobilized and is constructing the proposed improvements. These monthly visits shall be combined with any site visits made to resolve field problems relating to the construction or monthly progress meetings. When requested by the Construction Project Manager, the Engineer shall attend other meetings related to project design.
- D. Written construction site observation reports on work progress shall include all referenced supporting documents and deviations from the Construction Documents or the contractor's construction schedule observed by or brought to the attention of Engineer. Such reports shall be submitted within 72 hours to the Construction Project Manager. In performing these services, the personnel provided by the Engineer shall be experienced in the administration of construction contracts and shall be under the supervision of a professional engineer registered by the State of Texas. Supporting personnel shall be provided from the Project design team when specialized knowledge of the Project design is required;

The following guidelines are intended to provide consistency when preparing the required Construction Site Observation Reports. These guidelines are intended to be the minimum requirements and do not replace sound professional judgment.

1. A brief narrative of the type of construction activities occurring at the time of the site visit is to be prepared. The narrative should include a description of the progress to date and the quality of the ongoing work (based upon the contract documents). The following items should be observed and reported for each project site:
 - a. State the date and time period on the job site
 - b. Identify station and street work in progress or facility location observed.
 - c. Description of work should include the type of activities contractor was performing (e.g. excavating, backfilling, paving, etc.) approximate size of crew, number and type of equipment in use (e.g. 1 back hoe, 3 dump trucks, etc.) and where these activities were occurring (e.g. Along Misty Valley, between Foggy Lane and Rainy Day).
 - d. State whether the work observed was in general conformance to the contract documents or report the observed deficiencies (e.g. Work was in general conformance, except site was not being kept clean).
 - e. Identify whether the traffic control plan is being followed by the contractor. If it is not, determine the deficiencies. Include a statement as to the impact construction is having on the traffic.
 - f. Identify whether NPDES storm water pollution prevention plan (SWPPP) is in compliance with Contract Documents.
 - g. Identify whether trench safety system is in general compliance with contractor's submittal.
 - h. Note what discussions were held with the inspector, other City personnel or contractor.
 - i. Note what type of progress contractor has made since the last site visit.
 - j. To assist in the description of the work activities, the use of color photographs is required. Two photographs are to be furnished per major construction activity. Include a "byline" with each photograph. The byline should describe the activity, time and place.
 - k. Identify any work that is being performed where the applicable submittals have not been approved or work that deviates from the approved submittal or contract documents.
 - 1) Provide percentage of completion of the Work and an overall map, showing complete as well as incomplete areas.
 - 2) Unsafe conditions and major work deficiencies observed should be immediately brought to the attention of the City Inspector and the Construction Project Manager. Document such notifications on the report.
 - 3) Report and color photographs are to be sent to the Design Project Manager (one copy) and Construction Project Manager (one copy).
 - 4) Report is to accompany Engineer's monthly invoice.
- E. Review and take appropriate action upon the shop drawings, samples, and other submissions furnished by the construction contractor and submitted to Engineer by the City. Engineer shall determine if the shop drawings, samples, and other submissions conform to the requirements of the Construction Documents. Engineer shall notify the Construction Project Manager if the shop drawings, samples or other submissions do not conform to the Construction Documents. Such action(s) shall be taken within 14 calendar days of receipt from the City unless approved in advance

by the Director. Engineer shall maintain a log of all contractor submittals which shall include the submittal date, the action taken, and the date returned;

1. Prepare supporting data and provide other services (including revisions to Construction Documents) at no charge to the City in connection with change orders when such change orders are required either (1) to make clarifications or to correct discrepancies, errors, or omissions in the Construction Documents, (2) to conform the Construction Documents to the requirements of all applicable laws, codes, and regulations, including the City of Houston Building Code (which is expressly made applicable to this Project) as it was in effect at the time of execution of this Contract;
2. Review laboratory, shop, and mill tests of material and equipment for conformance with Contract Document requirements and report to the Director in writing on such matters;
3. Provide design clarifications and recommendations to assist the City in resolving field problems relating to the construction; Requests for Information (RFIs) will normally be generated by the Construction Contractor when a situation or condition is anticipated or encountered in the field that may not be fully addressed in the Construction Contract Documents. RFIs are to be reviewed, a complete and fully responsive written answer provided, and returned to the Construction Project Manager with a copy to the Design Project Manager within five (5) working days depending upon the criticality and impacted cost of the condition as described in the RFI.

Engineer's response to RFI's concerning proposed modifications or unforeseen conditions shall only address the technical and design aspect of the issue. Any cost or schedule impacts shall be addressed to the contractor by the Construction Project Manager.

4. Evaluate contractor change and cost proposals and substitutions and recommend to the City to either approve or disapprove the contractor's proposal or substitution, unless instructed not to do so by the Director; Request for Proposals (RFPs) will be initiated by the City when it is determined that a change to the Contract Documents has occurred or needs to occur. Based upon the scope of work identified in the RFP, when requested by the City, provide a written response as to the reasons and justification for the change in work.
5. Participate in substantial completion inspections and final completion inspections together with the Construction Project Manager to assist in identifying punch list items.
6. For contracts that require the contractor to service, calibrate, maintain or provide periodic site inspections for a period of one year after the date of substantial completion, the Engineer shall accompany the contractor and Construction Project Manager during such visits.

For projects involving startup, testing, calibration, training and operation of facilities or systems, the Engineer shall assist the Construction Project Manager in accomplishing such tasks in accordance with the contract documents.

7. To avoid misunderstandings or questions, Engineer understands and agrees that the Construction Project Manager shall have the responsibility for the administration of the construction contract. Accordingly, Engineer shall not have the authority or responsibility to issue direct instructions to the contractor, to reject work done by the contractor, or to require special inspections or tests. Engineer, however, shall provide continuing counsel throughout the construction of the Project; and
8. Post changes on original "record drawings" in whatever format specified by the Design Project Manager at time of execution. The drawings shall become the property of the City and shall show significant changes made in the Work during the construction of the Project. Such changes shall be based upon marked-up "record drawings", prints, field sketches, and other data furnished to Engineer by the City and the contractor, upon change orders issued during construction, and upon on-site observations of Engineer. The record drawing (as-built) revision guidelines are listed below:
 - a. Any significant deviations from the proposed utilities alignment shown in the as-bid drawings should be detailed as part of the Record Drawings upon completion of the Contractor's work.

- b. The presence of existing utilities that are either not shown or shown incorrectly in the as-bid drawings should be accurately depicted.
- c. Other revisions to be shown include:
 - 1) PPCM (Potentially Petroleum Contaminated Material) encounters.
 - 2) Lengths for proposed utilities that differ from that shown in the as-bid drawings.
 - 3) Deviations from proposed tunneling lengths.
 - 4) Existing pavement composition, i.e. "unreinforced concrete with asphalt overlay,"
 - 5) The name of the manufacturer for installed valves that are 20 inches and larger in diameter.
 - 6) Deviations from proposed restrained joint lengths if it is a water line project.
 - 7) Identify type of pipe material installed.
- d. Project RFI's (Contractor's Request for Information) should be reviewed to ensure the accuracy of the record drawings.
- e. Changes shall be made with India ink on original drawings. Actual alignments of utilities shall be shown. Incorrectly shown utilities shall be crossed out and drawn correctly. Inaccurate callouts shall have a line drawn through them. Revised callouts shall be hand-lettered.
- f. All record drawing revisions shall be accompanied by a revision number contained within a triangle. The revision shall then be dated and initialed in the revision block. Revisions made by, or under the supervision of, an Engineer other than the one whose seal appears on the subject drawing shall be signed and sealed by the Professional Engineer responsible for the revisions.
- g.. Submit Record Drawings within 30 days after receipt of Contractor "as-builts." Deliver to the Project Manager of Design.

3.0 ADDITIONAL SERVICES

Unless otherwise authorized or modified by the Director, the Engineer shall perform Additional Services in accordance with the following:

3.1 Survey

- A. Perform in accordance with the City Design Manual. Where new City of Houston monumentation is required in accordance with 2.06E of the Design Manual, provide separate cost for task under surveying additional services.
- B. Revise 2.07 C of Chapter 2 of the Design Manual to read as follows:

"All projects must be tied to the Texas State Plane Coordinate System; all coordinates shown or displayed on any drawings must be true State plane coordinates."
- C. Revise 2.07F of Chapter 2 of the Design Manual to read as follows:

"Route Topographical Survey - Record all topographic features and improvements within the public right-of-way, permanent right-of-way, any contiguous easements to the right-of-way, and any construction right-of-way of the Project, and on all intersecting streets for a distance of 20 feet

beyond the intersection of the right-of-way lines. For paving projects, extend the topographic survey at intersecting streets to 150 feet beyond the end of new pavement. Locate sufficient monumentation to determine lot lines, lot street address (unless instructed otherwise by the City), tract lines, and rights-of-way. Identify visible underground structures (by type, type of service, size, invert elevations, and depth) including manholes, inlets, and junction boxes. In general, do not open SWBT, Reliant Energy, and other private utility manholes and junction boxes.”

D. Deliverables shall be submitted no later than when the 70% drawings are submitted for review. Deliverables for route topographical survey services to the City include the following:

1. Original survey field books and electronic file.
2. Survey Control Map - A survey control map sheet drawn to scale of 1 inch = 100 feet shall show location and give a description of the vertical and horizontal City of Houston survey control monuments used for the Project. The sheet shall show both the survey base line and the Project alignment and give bearings and distances of all control lines. The beginning point, all P.I. points, and end point of both the Project alignment and the survey base line shall list the City of Houston survey control system coordinates and be tied into existing topography. The map shall contain the following: street names, centerline bearings, street intersection station equations, P.C.'s, P.T.'s, P.I.'s and curve data. All found property monuments shall be shown on the map with station-offset references made to the Project alignment. Those property monuments used as control monuments in setting the Project alignment shall be indicated. Project benchmarks, swing-tie (three-point tie) sketches, benchmark loops, and traverse shall be provided. The survey control map sheet shall be signed, sealed, and dated by the registered surveyor responsible for the survey.
3. Survey Drawing - Shows results of field survey work, topography, and improvements.

E. Survey services for acquisition of right-of-way, easement, or property shall include:

1. Right-of-way surveys and maps which show and describe the right-of-way, easement, or property to be acquired.
 - a. Overall project layout with acquisition parcels identified should be prepared identifying parcel taking and remainder.
 - b. Each acquisition parcel will have a mylar drawing (no smaller than 11" x 17") to be signed and ink stamped. Each parcel map shall include existing features.
 - c. Parcel maps should include NAD 83 State Plane Coordinates per City Ordinance 2003-1292
 - d. Each mylar drawing will include a City of Houston signature block (available from the City of Houston website), the Key Map page and section in title block, and Facet/GIMS number in title block.
 - e. For encroachments only, enlarged details of the encroachment(s) will be shown on the mylar drawing for encroachments into street right of way, show the right of way, right of way dimension and the street/avenue name.
 - f. Projects requiring TxDOT approvals should include a set of TxDOT approved, signed and sealed mylars and metes and bounds descriptions.
2. Deed research.
3. Metes and bounds descriptions.

F. Deliverables for Site Topographical Survey to the City, to be submitted no later than when 70% drawings are due, shall include original survey field books and electronic files, survey control map, and survey drawing.

G. In compliance with the geotechnical requirements of the City Design Manual, all geotechnical boring locations shall be surveyed upon completion of the geotechnical investigation. Provide station and

offset including true State plane coordinates with an accuracy of plus or minus one foot. The Engineer shall deliver the electronic files of this work to the City.

H. Channel Crossings:

1. Channel cross-sections shall be surveyed at street right-of-way and center of the right-of-way where feasible. At minimum, the survey shall include points at channel right-of-way, flowline of swales, channel high-bank, toe at channel side slope, apparent grade breaks, channel water level and channel flowline invert elevation.
2. Channel cross-sections shall be shown clearly on the design profile with all points surveyed including channel bottom flowline invert elevation.
3. The design engineer shall provide the location of the proposed utility crossing alignment to the surveyor. Channel cross-section at the proposed utility crossing location shall be surveyed once the alignment is determined. Any portion of the channel submerged under water shall be surveyed at points no further than 10 feet interval.
4. Complete channel cross-sections (as noted in Item 1 above) shall also be surveyed 20 feet upstream and downstream of proposed pipeline crossing location.

3.2 Geotechnical Investigation

- A. Perform in accordance with the City Design Manual.
- B. Provide geotechnical engineering report, signed and sealed by Professional Engineer, registered in the State of Texas along with executed Geotechnical Investigative Report Checklist.
- C. A boring location map and individual boring logs shall be incorporated into the geotechnical engineering report. All boring locations shall be clearly identified in the field to permit compliance with the Survey Requirements of the City Design Manual.
- D. Boring logs shall include as a minimum the following information:
 1. City WBS Number.
 2. Boring number.
 3. Boring location-station and either offset or distance from curb, and one other semi-permanent feature and boring elevation.
 4. Date of field work.
 5. Depth to groundwater (both at end of drilling and at 24-hour readings).
 6. Depth to caving.
 7. Completion depth.
 8. Soil and sample symbology.
 9. Soil description - soil type identifications in accordance with the Unified Soil Classification System.
 10. Geotechnical analytical data.
- E. Provide a soil type report, in compliance with the City Design Manual, signed and sealed by a Professional Engineer, registered in the State of Texas. This should consist of a letter report addressing the OSHA soil types and required trench safety system to be included in the construction specifications.
- F. The Engineer shall obtain and review boring logs by others. This information, along with boring logs gathered during the records review, are to be included in the Geotechnical Engineering Recommendations section of the geotechnical report. Include these logs in the appendix.

- G. At each boring location take surface and subsurface roadway core within the existing pavement area to determine the existing pavement section, including the thickness of the pavement, base and sub grade, and material types.
- H. If the potential for contamination exists, or if contamination is encountered at a bore hole location, the Engineer shall immediately notify the Director before proceeding. Comply with all applicable local, state, and federal environmental guidelines.
- I. The Engineer shall obtain permits and arrange for access to boring locations on private property.
- J. The Engineer shall provide for the safety of boring sites, including traffic control commensurate with the traffic and road conditions while working in street right-of-way.
- K. Critical locations (i.e., bayou crossings, railroads, etc.) which occur along the alignment may require site specific geotechnical information. Where the initial alignment borings cannot be positioned so that they provide part or all of this site specific information, additional borings (to depths in excess of the alignment borings) may be in order. Such cases will be handled on an individual basis.
- L. If no water-bearing layer is encountered, one piezometer shall be installed at the deepest boring location.
- M. For tunnel construction:
 - 1. Piezometers shall be installed, in water-bearing layer, at every other boring location.
 - 2. Perform continuous sampling through the tunnel zone (typically 6 feet above and below the tunnel). Sampling outside the tunnel zone should be in accordance with the requirements of the City Design Manual.
 - 3. Extend borings for tunnels typically one tunnel diameter below the tunnel invert, but not less than 15 feet.
 - 4. Extend borings for tunnel shafts typically 1.5 shaft diameters below the bottom of the shaft, but not less than 30 feet. Increase boring depths if necessary to determine the location of water-bearing layers and piezometric levels potentially affecting bottom stability. Use borings of less depth if ground water conditions are not of concern at the particular location.
- N. Obtain a minimum of two borings at each bridge site. Their depth shall be sufficient to develop pile curves, bearing and structural recommendations for the design and construction of the bridge structure.
- O. For bridge and retaining structure designs, in conjunction with TXDOT, perform TXDOT Cone Penetrometer test. Design procedures should be in accordance with TxDOT Bridge Design Manual, latest version.
- P. Perform Slope Stability Analysis for projects that are adjacent to the bank of a bayou or creek where the slope stability is of concern.
- Q. Perform Running Soil and Ground Water Aggressivity tests for projects where metallic pipes are used.
- R. In Projects where sandstone is encountered (also known as cemented soil or cemented sand); the Standard Penetration Test (SPT) shall be done continuously throughout the sandstone layer. Verify the length of the sandstone with additional borings.
- S. Submit the final Report in pdf format on a CD in a single file with a Table of Contents.

3.3 Environmental Site Assessment

- A. Refer to Department of Public Works and Engineering Standard Practice for Environmental Site Assessments, latest edition.
- B. Provide environmental site assessment reports along with executed Environmental Site Assessment Investigation Checklist. Provide asbestos and lead survey reports, when applicable.
- C. ESA Documents used for parcel acquisition must be current to within six months of acquisition. Updates may be required by Real Estate.
- D. Submit the final Report in pdf Format on a CD in a single file with a Table of Contents.

3.4 Special Licenses and Permits (Payment)

- A. The actual cost of special licenses and permits, including required inspection fees, shall be reimbursed by the City.
- B. This additional service does not include Engineering work associated with Basic Services.

3.5 Traffic Control Plan (TCP)

A. General

- 1. The specific traffic control work consists of the completed TCP, appropriate specifications and general notes, and traffic control construction cost estimates.
- 2. The TCP shall show detailed construction sequences and the necessary traffic control phases, complete with all barricades, signing, striping, delineation, detours, temporary traffic signals and any other devices, to protect the traveling public and provide safety to the construction forces.
- 3. The TCP should be accomplished with the least inconvenience to the traveling public consistent with expeditious completion of the Project in time and costs.

B. Standards and Guidelines:

Construction Sequencing and TCP shall be in accordance with general traffic engineering principles and practices governing traffic control during construction as prescribed by the guidelines of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), and City of Houston requirements.

- 1. The construction of the Project should be scheduled or sequenced to minimize the down time for the contractor and to maximize the utilization of space for the travel ways. Sequencing is accomplished by partitioning the Project into construction phases, which may be further segmented into steps. A "*phase*" is a major portion of the construction, scheduled in a logical progression toward Project completion. A "*step*" is a minor portion of the construction, subordinate to a particular phase.
- 2. The TCP should clearly distinguish areas of construction with areas of traffic for each phase. The work zone is also to be distinguished from the actual construction limits.
- 3. Maintain minimum emergency travel lane width of 10 feet at all times. If space is not available within the existing roadway, temporary widening of the pavement section may be necessary to provide a minimum 10-foot emergency travel lane.

4. The TCP should contain the following basic elements:
 - a. Project approach signing.
 - b. Phasing overview (as applicable).
 - c. Detailed plans for each phase of construction and any designated steps.
 - d. Necessary TCP details, including appropriate City standards (Barricade & Construction, etc.), typical lane closures, and intersection details.

C. Drawings:

1. Engineer shall verify and show existing field conditions of roadways and access to adjacent properties.
2. Engineer shall show traffic control devices and location of traffic flow, indicated by direction arrows, for each phase of the Project.
3. Engineer shall define construction areas by appropriate identifications, such as cross-hatching. Show all barricades, traffic signing, traffic signal changes, detour routing, and special intersection treatment details.
4. Engineer shall show only roadways that are existing or to be constructed under the Project. Do not show roadways that have been removed or that will be constructed in future contracts.
5. Engineer shall prepare cross sections for major thoroughfares and for each roadway variation showing the traffic lanes, construction pavement markings, delineators, barriers, buffer zone for barrels and concrete traffic barriers (CTBs), pavement drop-off, and construction details.
6. Engineer shall pictorially represent all construction signing and label with appropriate identification number as shown in TMUTCD. Show and identify all other traffic control devices in the plans and cross sections.
7. Engineer shall use a “typical” TCP detail for portions of the Project wherever possible.

D. General Notes and Specifications:

1. Engineer shall add general notes to the drawings or to the City’s Standard General Note Drawing, as required for clarity.
2. Engineer shall include The City of Houston Standard Specifications for Traffic Control, and supplement as required.

E. Graphical Standards:

1. Engineer shall use no smaller scales than 1 inch equals 50 feet for details and 1 inch equals 100 feet for overall signage or detour routing. Smaller scales shall require prior approval of the Director.
2. Engineer shall prepare traffic control construction quantities and estimate of Construction Cost.

F. For paving projects, include the following:

1. Engineer shall show temporary traffic control measures required during construction, such as temporary adjustments to traffic signal configurations, revisions to signal timing sequences, installations of contractor-supplied equipment and conduit to provide for proper signal operation, and parking restriction signs in areas where parking is not currently restricted but added roadway capacity is required.
2. Where substantial roadway capacity is being lost during construction, the Engineer shall show placement of contractor-supplied changeable message signs with proposed messages to encourage use of alternative routes by the traveling public

3.6 Storm Water Pollution Prevention Plan (SWPPP)

- A. Refer to City of Houston Standard Details and Standard Specifications.
- B. Refer to City of Houston "Storm Water Management Handbook for Construction Activities." Engineer shall determine whether project is a Major, Minor or Non-permitted construction activity per TPDES requirements.
- C. The Engineer shall prepare the following documents in accordance with the above referenced standards and as described below:
 1. Pollution Prevention Plan Report, as required.
 2. Pollution Prevention Plan drawings having a minimum scale of 1 inch equals to 100 feet and showing all existing and proposed streets, Project alignments, applicable notes, proposed storm water conveyance systems, overland flow arrows, and pollution prevention measures.
 3. Pollution Prevention Plan specifications.
 4. Pollution Prevention Plan construction quantities and estimate of Construction Cost.
 5. The EPA Notice of Intent form (if required).

3.7 Existing Conditions Survey and Analysis

- A. The Engineer shall perform a survey and analyses of the existing conditions at designated locations. The Engineer shall submit the results of this work in a separate report.
- B. This special service is used where a separate deliverable is desired, and where the survey/ analysis is not directly related to the scope of the new work, thus the engineering cost would not be included in the Basic Services.

Example - Consider a project that includes the mechanical and electrical rehabilitation of an existing pump station at a treatment plant site. Surveying and analyzing the existing conditions of the pump station would not be included under Additional Services, since it is covered under Basic Services. However, if on the same project the Public Utilities also desired a survey and analysis of the electrical/mechanical systems of the aeration blowers, but no new work to the existing aeration blowers was included, then this would be an example of Additional Services.

3.8 Street Lighting Plans

- A. For new roadway construction or complete roadway reconstruction, it is the City of Houston's practice to upgrade street lighting along all roadways to current recommended levels as part of the Capital Improvement Projects.
- B. Proposed Street Lighting locations shall be provided at 1"=40' scale (minimum) consistent with project overall layouts.

- C. Design consultant will prepare the lighting layout, spacing the streetlights at a distance of approximately 200 feet \pm 10% for driveway/utility conflicts. For roadway sections less than four lanes, stagger the streetlights along both sides of the roadway, maintaining the 200 foot \pm 10% spacing. The design should include any existing street lighting and generally begin layouts at intersections working away from them.
- D. Street Lighting plans shall show the proposed street lighting locations, electrical conduits, pull boxes and power feed locations provided by CenterPoint Energy in accordance with published CenterPoint Energy specifications.
- E. The lighting layout will be submitted to the Traffic and Transportation Division (TTD) of Public Works & Engineering for review and approval. Upon approval of TTD, the approved layout will be submitted to CenterPoint Energy for review and cost estimate preparation for temporary or new fixtures. Conduit and pull box costs shall be included in the Engineers Project Construction Cost Estimate.
- F. Street Lighting Plans shall include a table showing the locations of the existing and proposed streetlights by station number.

3.9 Tree Protection, Mitigation and Planting Plan

The following requirements are minimum for projects where tree inventory, protection, mitigation is required.

- A. All tree protection, mitigation and planting plans shall be prepared for compliance with Article V and VI of Chapter 33 of the City of Houston Code of Ordinances.
- B. Consultant will conduct an inventory of trees within and immediately adjacent to the street right-of-way including as a minimum: tree number, caliper, species, condition and physical address (where feasible).
- C. Tree Protection Plans will include a project layout sheet with each tree location graphically identified by tree number and the appropriate protection measures to be utilized. Details of protection measures shall be provided as necessary.
- D. The Tree Protection Plan will include a treatment schedule (tabular form) for all trees impacted by the project that shall include the tree number, physical address, species, caliper, condition and recommended treatment schedule.
- E. Tree Mitigation Plan will identify all trees to be removed from the project by tree number, physical address, species, caliper, condition and replacement conditions under the ordinance (tabular form).
- F. Trees identified to be replacements per the Tree Mitigation Plan shall be shown on a Tree Planting Plan of suitable scale and detail along with technical specifications and construction quantities. The Tree Planting Plan shall represent requirements necessary for compliance under the Ordinance.
- G. Tree inventories and treatment schedules are to be provided by a Certified Arborist. Plan and document preparation shall be provided by industry professionals in accordance with State Guidelines.

3.10 Traffic Signals

- A. Traffic Signal Installations/Upgrades/Modifications shall be designed in accordance with Chapter 15 requirements of Design Manual, Intersection and Traffic Operations Design Manual – City of Houston, Public Works Department, Traffic Division and all applicable State and/or Federal requirements.
- B. Traffic Warrant Studies will be conducted only upon authorization from Engineering & Construction Division Project Manager in consultation with Traffic & Transportation Division of PWE.

3.11 Drainage Investigations

- A. Storm sewer and overland flow analysis/design shall meet the requirements of Chapter 9 of the Design Manual and TP-100 (Storm Sewer Design Applications for the City of Houston, Texas, Capital Improvement Plan Projects.” Such services shall be paid as a Basic Service under Phase I or Phase II engineering.
- B. Hydraulic Impact Studies shall be conducted with paving and storm sewer projects (when authorized) to determine potential for increased downstream runoff and associated mitigation requirements necessary to offset the impacts. Studies shall be consistent with COH and HCFCD drainage requirements. Such services shall be paid as an Additional Service.

3.12 Technical Review Committee (TRC) Meeting

- A. The Engineer shall attend a Pre-TRC meeting, as scheduled by the Director. The purpose of the Pre-TRC is to allow the Director to review the preliminary design, presentation materials, and recommendations. The Engineer shall have completed and submitted the Preliminary Engineering Report (PER) prior to the Pre-TRC meeting. As part of the pre-TRC, the Engineer shall prepare a Microsoft PowerPoint presentation, a TRC agenda and an executive summary showing the alternatives, recommendations and estimated construction and project costs.
- B. Upon successful completion of the Pre-TRC meeting, the Engineer shall attend a TRC Meeting. The purpose of the TRC meeting is to present the preliminary engineering recommendations to the City’s Technical Review Committee for approval to proceed to Final Design. The Engineer will provide equipment for preparation and presentation of the TRC meeting. Members of the TRC are City staff and may include senior managers representing engineering, operations, maintenance, and construction divisions. The TRC will evaluate the Engineer’s recommendations and approve or modify as appropriate.
- C. Within 3 days following the TRC Meeting, the Engineer shall submit a summary of the decisions and action items from the meeting, and a revised Construction Cost estimate.

4.0 DEFINITION OF PHASE II MILESTONES FOR PAYMENT (Refer to Article 3.2.3 of Contract)

4.1 Research Utilities

- A. Engineer obtains and completes review of available record drawings.
- B. Engineer completes the utility plan review, as defined in this Scope of Services.
- C. Engineer completes coordination with other agencies, as defined in this Scope of Services.
- D. Engineer verifies information obtained in steps A, B, and C above against findings from Survey.
- E. Engineer obtains maps and correspondence from applicable private utilities, showing and verifying location of existing private utilities.

4.2 Plot of Topographical Surveys and Utilities

- A. Engineer submits set of plan drawings showing results of topographic survey and location of existing public and private utilities.

4.3 50% Drawings

- A. Engineer submits sets of construction drawings including, as a minimum:
 - 1. Cover Sheet
 - 2. Overall Layout Sheet
 - 3. Survey Control Map
 - 4. Plan and profile drawings of existing conditions and existing utilities
 - 5. Plan drawings of proposed improvements
 - 6. Profile drawings of proposed improvements at critical locations and potential conflicts
 - 7. Locations of crossings (RR, HCFCD, TXDOT, etc.), potentially contaminated areas, and proposed real estate acquisitions
 - 8. For Facilities Projects – process flow diagrams; piping and instrumentation diagrams, as applicable
 - 9. For Water & Wastewater Projects – design calculations for the proposed improvements and system head curves for pumps
- B. Engineer submits table of contents for construction specifications.
- C. Engineer submits design review checklists (as available).
- D. Engineer makes initial coordination effort with private utilities regarding potential conflicts for the project.
- E. Engineer submits plans in CAD or Microstation Files on a CD or DVD, as requested by the Director.

4.4 70% Drawings and Draft Specifications

- A. Engineer submits sets of completed construction drawings including as a minimum:
 - 1. Cover Sheet
 - 2. Index Sheet (list of drawings)
 - 3. Overall Layout Sheet
 - 4. Survey Control Map
 - 5. General Notes Sheets (as required)
 - 6. Plan and profile drawings of existing conditions, existing utilities and proposed improvements
 - 7. Details of crossings (RR, HCFCD, TXDOT, etc.), potentially contaminated areas, and proposed real estate acquisitions
 - 8. Standard Details
 - 9. Traffic Control Plan, Detour Plans and temporary Traffic Signal plans (if required)
 - 10. Storm Water Pollution Prevention Plan (if required)
 - 11. Tree and plant protection plan (if required)
 - 12. For Paving Projects, also include:
 - a. Typical roadway section/cross section
 - b. Proposed Traffic Signal Plans
 - c. Proposed Paving Marking and Signage Plans
 - d. Street Lighting Plans
 - e. Drainage Area Maps
 - f. Houston Storm Sewer Computations
 - 13. For Facilities Projects – process flow diagrams; piping and instrumentation diagrams, as applicable
 - 14. For Water & Wastewater Projects – design calculations for the proposed improvements and system head curves for pumps
 - 15. Engineer submits sheet-by-sheet quantity takeoff, flagman hour calculation, and documentation to support the construction duration specified
- B. Engineer submits sets of draft construction specifications including as a minimum:

1. Table of Contents
 2. Document 00410 (Bid Form) with all bid items, but excluding quantities
 3. Section 01110 (Summary of Work)
 4. Completed technical specifications (Division 2 through 16, as required)
 5. All supplemental and non-standard technical specifications included in Divisions 2 through 16 identified.
 6. A detailed construction cost estimate.
- C. Engineer submits documentation that drawings were submitted to private utilities for final review.
- D. Engineer submits design review checklist (as available).
- E. Engineer submits plans in CAD or Microstation files and an electronic copy of specifications on a CD or DVD, as requested by the Director.
- 4.5 Final Drawings and Specifications (100% Design)
- A. Engineer submits completed sets of construction drawings, with all review comments resolved.
- B. Engineer submits completed construction specifications.
- C. Engineer submits signed and sealed sheet-by-sheet quantity takeoff, flagman hour calculation, and documentation to support the construction duration specified.
- D. Engineer provides permit approval, as applicable, from TXDOT, HCFCD, Railroads, U.S. Army Corps of Engineers, and Harris County Public Infrastructure Department.
- E. Engineer documents submittals of plans to City for Building Permit Application (including Floodplain Administration) and to Texas Department of Licensing and Regulations for ADA requirements, if applicable.
- F. For wastewater projects, Engineer submits Final Engineering Design Report (FEDR) in conformance with TCEQ requirements.
- G. Engineer submits plans in CAD or Microstation files and an electronic copy of specifications on a CD or DVD, as requested by the Director.
- 4.6 Bid-ready Drawings and Specifications
- A. Engineer submits bid-ready construction documents (signed and sealed construction drawings with all required signatures; and completed construction specifications).
- B. Engineer documents that application for City Building Permit is approved, if applicable.
- 4.7 Bidding Services
- A. Engineer completes services as per requirements of the Contract and the Scope of Services.
- .

EXHIBIT "B"
PROJECT SCHEDULE

EXHIBIT "C"

EQUAL EMPLOYMENT OPPORTUNITY

1. The contractor, subcontractor, vendor, supplier, or lessee will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, or age. The contractor, subcontractor, vendor, supplier, or lessee will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, religion, color, sex, national origin, or age. Such action will include, but not be limited to, the following: employment; upgrading; demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation and selection for training, including apprenticeship. The contractor, subcontractor, vendor, supplier or lessee agrees to post in conspicuous places available to employees, and applicants for employment, notices to be provided by the City setting forth the provisions of this Equal Employment Opportunity Clause.

2. The contractor, subcontractor, vendor, supplier, or lessee states that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin or age.

3. The contractor, subcontractor, vendor, supplier, or lessee will send to each labor union or representatives of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer advising the said labor union or worker's representative of the contractor's and subcontractor's commitments under Section 202 of Executive Order No. 11246, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

4. The contractor, subcontractor, vendor, supplier, or lessee will comply with all provisions of Executive Order No. 11246 and the rules, regulations, and relevant orders of the Secretary of Labor or other Federal Agency responsible for enforcement of the equal employment opportunity and affirmative action provisions applicable and will likewise furnish all information and reports required by the Mayor and/or Contractor Compliance Officer(s) for purposes of investigation to ascertain and effect compliance with this program.

5. The contractor, subcontractor, vendor, supplier, or lessee will furnish all information and reports required by Executive Order No. 11246, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to all books, records, and accounts by the appropriate City and Federal Officials for purposes of investigations to ascertain compliance with such rules, regulations, and orders. Compliance reports filed at such times as directed shall contain information as to the employment practice policies, program, and work force statistics of the contractor, subcontractor, vendor, supplier, or lessee.

6. In the event of the contractor's, subcontractor's, vendor's, supplier's, or lessee's non-compliance with the non-discrimination clause of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part, and the contractor, subcontractor, vendor, supplier, or lessee may be declared ineligible for further City contracts in accordance with procedures provided in Executive Order No. 11246, and such other sanctions may be imposed and remedies invoked as provided in the said Executive Order, or by rule, regulation, or order of the Secretary of Labor, or as may otherwise be provided by law.

7. The contractor shall include the provisions of paragraphs 1-8 of this Equal Employment Opportunity Clause in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontractor or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance; provided, however, that in the event the contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

8. The contractor shall file and shall cause his or her subcontractors, if any, to file compliance reports with the City in the form and to the extent as may be prescribed by the Mayor. Compliance reports filed at such times as directed shall contain information as to the practices, policies, programs, and employment policies and employment statistics of the contractor and each subcontractor.

EXHIBIT "E"
CERTIFICATE OF INSURANCE

EXHIBIT "F"

DRUG POLICY COMPLIANCE AGREEMENT

I, _____ as an owner or officer of
(Name) (Print/Type) (Title)

(Name of Company) (Engineer)

have authority to bind Engineer with respect to its bid, offer or performance of any and all contracts it may enter into with the City of Houston; and that by making this Agreement, I affirm that the Engineer is aware of and by the time the contract is awarded will be bound by and agree to designate appropriate safety impact positions for company employee positions, and to comply with the following requirements before the City issues a Notice to Proceed:

1. Develop and implement a written Drug Free Workplace Policy and related drug testing procedures for the Engineer that meet the criteria and requirements established by the Mayor's Amended Policy on Drug Detection and Deterrence (Mayor's Drug Policy) and the Mayor's Drug Detection and Deterrence Procedures for Engineers (Executive Order No. 1-31).
2. Obtain a facility to collect urine samples consistent with Health and Human Services (HHS) guidelines and a HHS certified drug testing laboratory to perform the drug tests.
3. Monitor and keep records of drug tests given and the results; and upon request from the City of Houston, provide confirmation of such testing and results.
4. Submit semi-annual Drug Policy Compliance Declarations.

I affirm on behalf of the Engineer that full compliance with the Mayor's Drug Policy and Executive Order No. 1-31 is a material condition of the contract with the City of Houston.

I further acknowledge that falsification, failure to comply with or failure to timely submit declarations and/or documentation in compliance with the Mayor's Drug Policy and/or Executive Order No. 1-31 will be considered a breach of the contract with the City and may result in non-award or termination of the contract by the City of Houston.

Date

Engineer Name

Signature

Title

EXHIBIT "G"

DRUG POLICY COMPLIANCE DECLARATION

I, _____ as an owner or officer of
(Name) (Print/Type) (Title)

(Name of Company) (Engineer)

have personal knowledge and full authority to make the following declarations:

This reporting period covers the preceding 6 months from _____ to _____, 20____.

Initials A written Drug Free Workplace Policy has been implemented and employees notified.
The policy meets the criteria established by the Mayor's Amended Policy on Drug Detection and Deterrence (Mayor's Policy).

Initials Written drug testing procedures have been implemented in conformity with the Mayor's Drug Detection and Deterrence Procedures for Engineers, Executive Order No. 1-31. Employees have been notified of such procedures.

Initials Collection/testing has been conducted in compliance with federal Health and Human Services (HHS) guidelines.

Initials Appropriate safety impact positions have been designated for employee positions performing on the City of Houston contract. The number of employees in safety impact positions during this reporting period is _____.

Initials From _____ to _____ the following test has occurred
(Start date) (End date)

	<u>Random</u>	<u>Reasonable Suspicion</u>	<u>Post Accident</u>	<u>Total</u>
Number Employees Tested	_____	_____	_____	_____
Number Employees Positive	_____	_____	_____	_____
Percent Employees Positive	_____	_____	_____	_____

Initials Any employee who tested positive was immediately removed from the City worksite consistent with the Mayor's Policy and Executive Order No. 1-31.

Initials I affirm that falsification or failure to submit this declaration timely in accordance with established guidelines will be considered a breach of contract.

I declare under penalty of perjury that the affirmations made herein and all information contained in this declaration are within my personal knowledge and are true and correct.

(Date)

(Typed or Printed Name)

(Signature)

(Title)

EXHIBIT "H"

**ENGINEER'S CERTIFICATION
OF NO SAFETY IMPACT POSITIONS
IN PERFORMANCE OF A CITY CONTRACT**

_____, _____
(Name) (Title)

as an owner or officer of _____ (Engineer)
(Name of Company)

have authority to bind the Engineer with respect to its bid, and hereby certify that Engineer has no employee safety impact positions, as defined in §5.18 of Executive Order No. 1-31, that will be involved

in performing _____.
(Project)

Engineer agrees and covenants that it shall immediately notify the City of Houston Director of Personnel if any safety impact positions are established to provide services in performing this City Contract.

(Date)

(Typed or Printed Name)

(Signature)

(Title)

EXHIBIT "I"
MWBE SUBCONTRACT TERMS

Engineer shall insure that all subcontracts with MWBE subcontractors and suppliers are clearly labeled **"THIS CONTRACT IS SUBJECT TO BINDING ARBITRATION ACCORDING TO THE TEXAS GENERAL ARBITRATION ACT"** and contain the following terms:

1. _____ (MWBE subcontractor) shall not delegate or subcontract more than 50% of the work under this subcontract to any other subcontractor or supplier without the express written consent of the City of Houston's Affirmative Action Director ("the Director").

2. _____ (MWBE subcontractor) shall permit representatives of the City of Houston, at all reasonable times, to perform (1) audits of the books and records of the subcontractor, and (2) inspections of all places where work is to be undertaken in connection with this subcontract. Subcontractor shall keep such books and records available for inspection for at least 4 years after the end of its performance under this subcontract. Nothing in this provision shall change the time for bringing a cause of action.

3. Within five business days of execution of this subcontract, Engineer (prime engineer) and Subcontractor shall designate in writing to the Director an agent for receiving any notice required or permitted to be given pursuant to Chapter 15 of the Houston City Code of Ordinances, along with the street and mailing address and phone number of such agent.

4. Any controversy between the parties involving the construction or application of any of the terms, covenants or conditions of this subcontract shall, on the written request of one party served upon the other or upon notice by Director served on both parties, be submitted to binding arbitration, under the Texas General Arbitration Act (Tex. Civ. Prac. & Rem. Code Ann., Ch. 171 -- "the Act"). Arbitration shall be conducted according to the following procedures:

a. Upon the decision of the Director or upon written notice to the Director from either party that a dispute has arisen, the Director shall notify all parties that they must resolve the dispute within thirty (30) days or the matter may be referred to arbitration.

b. If the dispute is not resolved within the time specified, any party or the Director may submit the matter to arbitration conducted by the American Arbitration Association under the rules of the American Arbitration Association, except as otherwise required by the City's contract with American Arbitration Association on file in the Office of the City's Affirmative Action Division.

c. Each party shall pay all fees required by the American Arbitration Association and sign a form releasing the American Arbitration Association and its arbitrators from liability for decisions reached in the arbitration.

d. If the American Arbitration Association no longer administers Affirmative Action arbitration for the City, the Director shall prescribe alternate procedures as necessary to provide arbitration by neutrals in accordance with the requirements of Chapter 15 of the Houston City Code of Ordinances.

e. All arbitrations shall be conducted in Houston, Texas unless the parties agree to another location in writing.

EXHIBIT "J"

SUBCONTRACTOR'S ASSIGNMENT OF COPYRIGHT

THE STATE OF TEXAS §
 §
COUNTY OF HARRIS §

1. Engineer has entered into a Contract with the **CITY OF HOUSTON, TEXAS** ("City") to provide

as well as related support and consulting services ("Services").

2. Subcontractor is or will be providing services for Engineer related to its Contract with the City.

3. In the course of Subcontractor's work for Engineer related to the provision of Services to the City, Contract Documents and other work products will be produced by Subcontractor for the benefit of the City for which Subcontractor will be compensated by Engineer.

4. Contract Documents include but are not limited to reports, charts, analyses, maps, letters, tabulations, computer programs, exhibits, notes, models, photographs, the original transparencies of all drawings, all graphic and written information prepared or assembled by Subcontractor and all other work products obtained or prepared by Subcontractor as part of its services for Engineer.

5. For and in consideration of the foregoing, the Subcontractor shall grant and assign and hereby does grant and assign to the City all right, title, interest and full ownership worldwide in and to any work, invention and all Contract Documents, or any modifications or improvements to them, and the copyrights, patents, trademarks, trade secrets and any other possessory or proprietary rights therein, that are discovered, conceived, developed, written or produced by the Subcontractor, its agents and employees pursuant to its contract with Engineer (collectively "Works"), to have and to hold the same unto the City absolutely.

6. The Subcontractor agrees that neither it nor any of its agents and employees shall have any right to assert or establish a claim or exercise any of the rights embodied in any copyrights, patents, trademarks, trade secrets and any other possessory or proprietary rights related to the Works. If requested by the Engineer, the Subcontractor shall place a conspicuous notation upon any such Works which indicates that the copyright, patent, trademark or trade secret thereto is owned by the City of Houston.

7. The Subcontractor shall execute all documents required by the Engineer and the Director of the Department of Public Works and Engineering of the City ("Director") to further evidence such assignment and ownership. The Subcontractor shall cooperate with the Engineer and the City in registering, creating or enforcing any copyrights, patents, trademarks, trade secrets or other possessory or proprietary rights arising hereunder. If any assistance by the Subcontractor is requested and rendered pursuant to this Section, the City shall reimburse the Subcontractor for all out-of-pocket expenses incurred by the Subcontractor in rendering such assistance, subject to the availability of funds. On termination of the Subcontractor's contract with Engineer or upon request by the Director, the Subcontractor shall deliver all Works to the City. The Subcontractor agrees that its agents and employees performing work hereunder are bound by the terms of this Exhibit.

IN WITNESS HEREOF, Subcontractor has executed this Assignment as of this_____day
of_____, 20_____.

Subcontractor

By:
Title:

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CITY OF HOUSTON
AND
«ENGINE»
FOR
PHASES I, II, AND III
PROFESSIONAL ENGINEERING SERVICES
FOR DESIGN OF:
«PROJECT»
WBS No. «wbsnum»